Alberta Sexually Transmitted Infections and HIV

2023

Alberta

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For more information about this document contact:
Health Analytics, Alberta Health
PO Box 1360 Stn Main
Edmonton, AB T5J 2N3
Email: Health.Surveillance@gov.ab.ca
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Foreword

Sexually transmitted infections (STIs) are an important cause of morbidity in Alberta. In some instances, surveillance of STIs in Alberta has been ongoing since the early 1920s. This has provided essential information for policy and decision-making. The requirements for reporting communicable diseases, including Sexually Transmitted and Blood-Borne Infections (STBBIs), are mandated by the *Communicable Diseases Regulation* [1] under the *Alberta Public Health Act* [2]. Notifiable STI and Human Immunodeficiency Virus (HIV) cases are reportable to the AHS STI Medical Director at Alberta Health Services (AHS) via Sexually Transmitted Infection Centralized Services (STICS) and STICS notifies the Alberta Health Chief Medical Officer of Health/designate. For additional details on reporting, please refer to the Public Health Disease Management Guidelines at https://open.alberta.ca/publications.

The Sexually Transmitted Infections and HIV in Alberta: Annual Report provides a high-level overview of four notifiable STBBIs: chlamydia (including lymphogranuloma venereum (LGV)), gonorrhea, HIV, and infectious syphilis. This report focuses on examining case numbers and rates of the listed STBBIs for the current year within the context of previous years and Alberta Health Services' (AHS) Zones. As such, the report is organized into six profiles, starting with the entire province and followed by each of AHS' five zones (South, Calgary, Central, Edmonton, and North). This is intended to provide greater insight and comparison between geographic regions. For more information on AHS Zones, please visit: https://www.albertahealthservices.ca/zones/zones.aspx.

For this edition, additional inserts on congenital, non-infectious syphilis, and antimicrobial resistance (AMR) of *Neisseria gonorrhoeae* have been included (please refer to the Annex).

Data collected under the surveillance program is compiled, summarized, and presented on the Interactive Health Data Application (IHDA): http://www.ahw.gov.ab.ca/IHDA_Retrieval/.

Acronyms & Definitions

AHS: Alberta Health Services
AMR: Antimicrobial resistance
APL: Alberta Precision Laboratory
Case Counts: the number of cases reported to Alberta Health as per notifiable disease guidelines
Chemsex: sexual activity while under the influence of drugs, typically methamphetamine, mephedrone, or GHB/GBL
HIV: Human Immunodeficiency Virus
IDU: Intravenous Drug Use
IHDA: Interactive Health Data Application
LGV: Lymphogranuloma Venereum
MSM: Men who have Sex with Men
NAAT: Nucleic acid amplification tests
POCT: Point-of-care testing
STBBI: Sexually Transmitted and Blood-Borne Infection
STI: Sexually Transmitted Infection
STICS: Sexually Transmitted Infection Centralized Services

Acknowledgments

This report was prepared in partnership and in collaboration with public health and laboratory experts from:

- Alberta Health
- Alberta Health Services (AHS)
- Alberta Precision Laboratory (APL)

Considerations for Interpreting Surveillance Data

Efforts are taken to ensure surveillance and laboratory data collected by Alberta Health and AHS are accurate and complete; however, interpreting surveillance data is complex. Although observed trends may be indicative of a true increase or decrease in STI/HIV cases and rates, several influencing factors should be considered:

- Changes in surveillance and data collection methods (e.g. improved contact tracing, electronic reporting).
- Changes in social behaviors, attitudes, and stigma (e.g. social media, Chemsex, and public health awareness campaigns). [3]–[5]
- New diagnostic tools and increased testing/screening (e.g. Nucleic acid amplification tests (NAATs) are more sensitive than previous methods; point-of-care tests (POCTs) help minimize time gaps between the test result and treatment). [6]
- Compared to females, males are more likely to experience symptoms and present for testing when infected with some STIs. [7], [8]
- In general, females of reproductive age groups are more likely to be screened for STI/HIV.
- Depending upon the site of infection, male to female transmission for some STIs occurs at a higher rate than female to male transmission. [9]–[11]
- Compared to males, females are more biologically susceptible to certain STIs (e.g. chlamydia) due to structural characteristics of their genital epithelium. [8], [11]
- Social determinants of health may impact select populations' ability to access care.
- Rates of infection calculated using small case numbers must be interpreted with caution.

Specific health initiatives, and/or changes to laboratory testing practices that may influence trends seen in this report include [12], [13]:

- Effects of the COVID-19 pandemic on service capacity, testing, and general access to care.
- Drop-in appointments increased but scheduled appointment-based service remained dominant.
- Transition away from COVID-19 emergency response (e.g. staff returned from deployments).
- Increased NAAT on placental tissue to improve congenital syphilis detection.
- Incentive for testing in hard-to-reach and most-at-risk populations. [14]
- Federal government funding to expand access to HIV self-test kits.
- Clinical trial using two investigational POCT for syphilis and HIV between August 2020 and February 2022. [15]
- Initiation of rapid POCT for syphilis and HIV in two acute care facilities using bioLytical's Multiplex HIV-1/2 Syphilis AB Test, licensed by Health Canada in March 2023. [16]
- Expansion of POCT in STI Services and the three provincial STI Clinics since March 2022.

1. Alberta Profile

Case Counts
A total of 26,285 STI/HIV cases were reported in 2023:

- Chlamydia: 17,625 cases, an increase of 4.9 per cent (n = 828) compared to 2022.
- Gonorrhea: 5,430 cases, an increase of 9.0 per cent (n = 448) compared to 2022.
- HIV: 507 cases, an increase of 73.0 per cent (n = 214) compared to 2022.
- Infectious syphilis: 2,723 cases, a decrease of 17.9 per cent (n = 593) compared to 2022.

Rate of Reported Cases
- Chlamydia: 375.4 cases per 100,000 population, an increase of 0.8 per cent compared to 2022.
- Gonorrhea: 115.7 cases per 100,000 population, an increase of 4.7 per cent compared to 2022.
- HIV: 10.8 cases per 100,000 population, an increase of 66.2 per cent compared to 2022.
- Infectious syphilis: 58 cases per 100,000 population, a decrease of 21.1 per cent compared to 2022.

Gender and Age
- Chlamydia cases: 58.1 per cent were female, of which 56.5 per cent were 15-24 years old.
- Gonorrhea cases: 57.8 per cent were male, of which 36.3 per cent were 30-39 years old.
- HIV cases: 41.6 per cent were female, of which 37.9 per cent were 25-39 years old.
- Infectious syphilis cases: 54.5 per cent were male, of which 36.6 per cent were 30-39 years old.

HIV Exposure Categories
In 2023, the distribution of cases by most likely exposure category was as follows:

- Acquired Out of Country: 54.8 per cent (n = 278), compared to 43.0 per cent (n = 126) in 2022.
- Heterosexual Exposure: 18.5 per cent (n = 94), compared to 20.5 per cent (n = 60) in 2022.
- IDU: 5.1 per cent (n = 26), compared to 13.7 per cent (n = 40) in 2022.
- MSM: 12.4 per cent (n = 63), compared to 15.0 per cent (n = 44) in 2022.
- MSM & IDU: 2.8 per cent (n = 14), compared to 4.1 per cent (n = 12) in 2022.
- Perinatal: 0.4 per cent (n = 2), compared to 0.3 per cent (n = 1) in 2022.
- Other/Unknown: 5.9 per cent (n = 30), compared to 3.4 per cent (n = 10) in 2022.

The most common exposure category in 2023 among both male and female cases was ‘Acquired Out of Country’.

Spatial Distribution
- The highest chlamydia rates among AHS Zones were North Zone (558.1 cases per 100,000 population) and Edmonton Zone (395.1 cases per 100,000 population).
- The highest gonorrhea rates among AHS Zones were North Zone (163.6 cases per 100,000 population) and Edmonton Zone (157.7 cases per 100,000 population).
- The highest HIV rates among AHS Zones were Edmonton Zone (13.7 cases per 100,000 population) and Calgary Zone (11.5 cases per 100,000 population).
- The highest infectious syphilis rates among AHS Zones were North Zone (132.4 cases per 100,000 population) and Edmonton Zone (64.4 cases per 100,000 population).

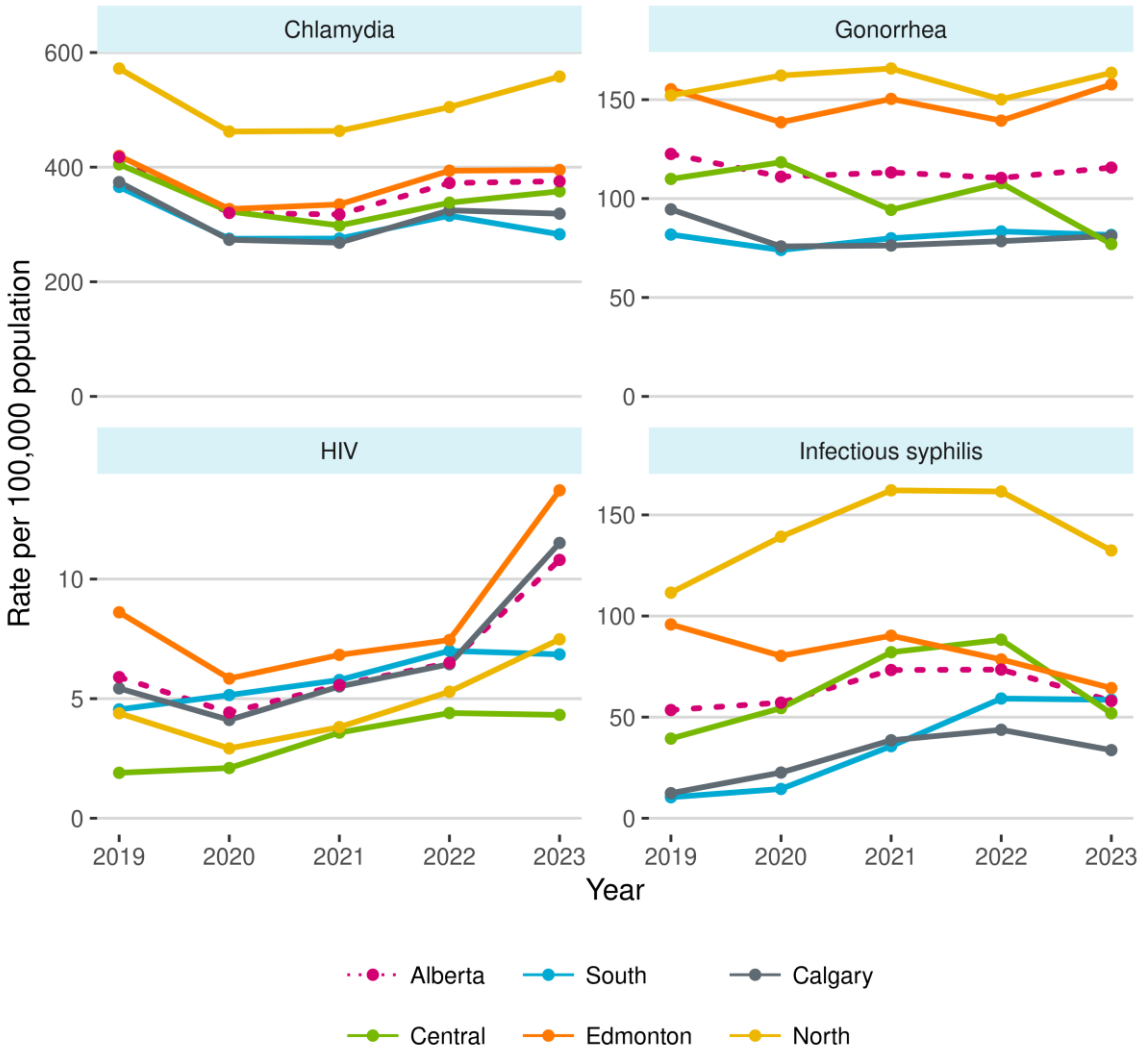


Figure 1. Rates of reported STIs/HIV for Alberta and AHS Zones, 2019 to 2023.

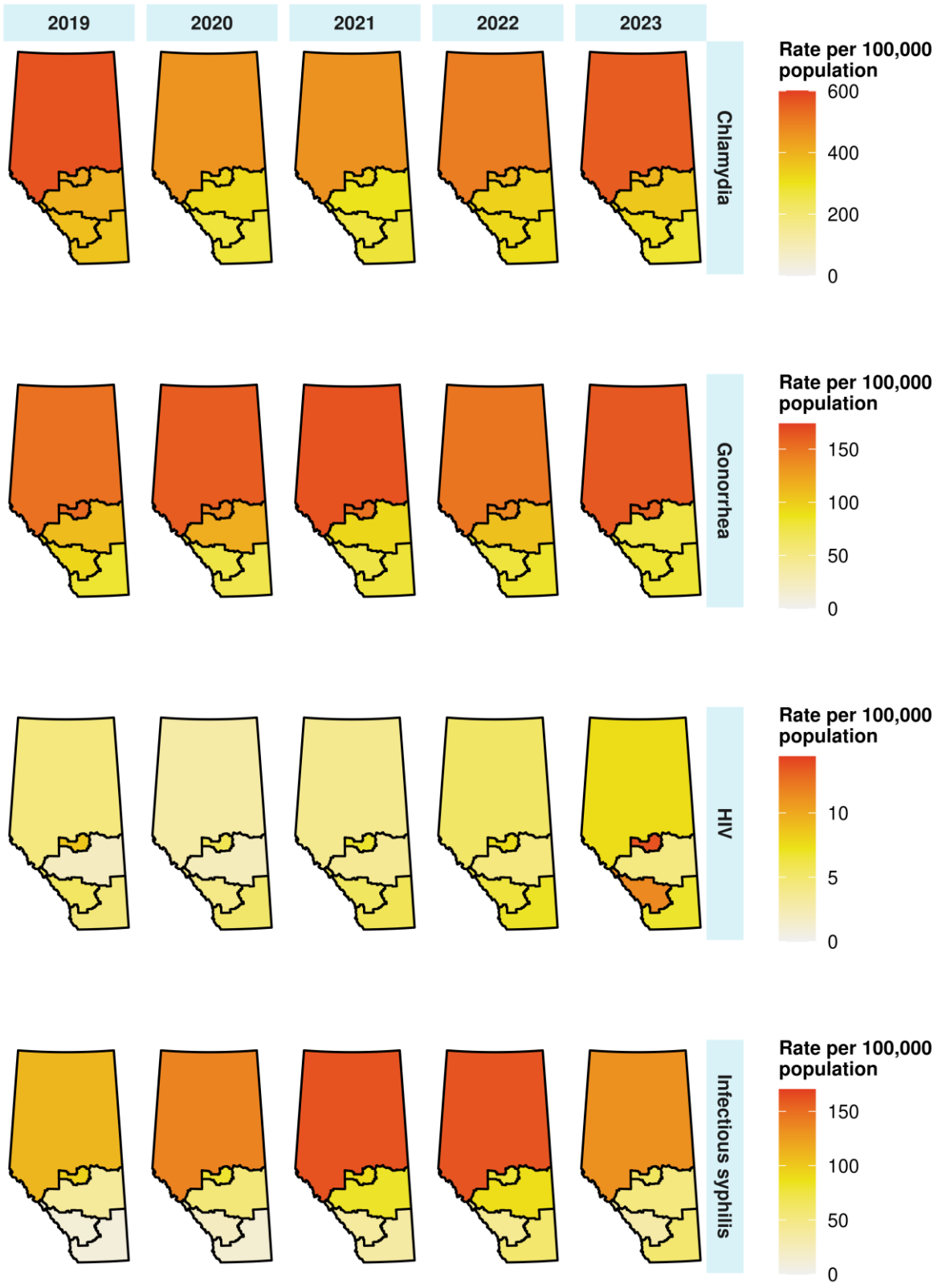


Figure 2. Rates of reported STIs/HIV by AHS Zones, 2019 to 2023.

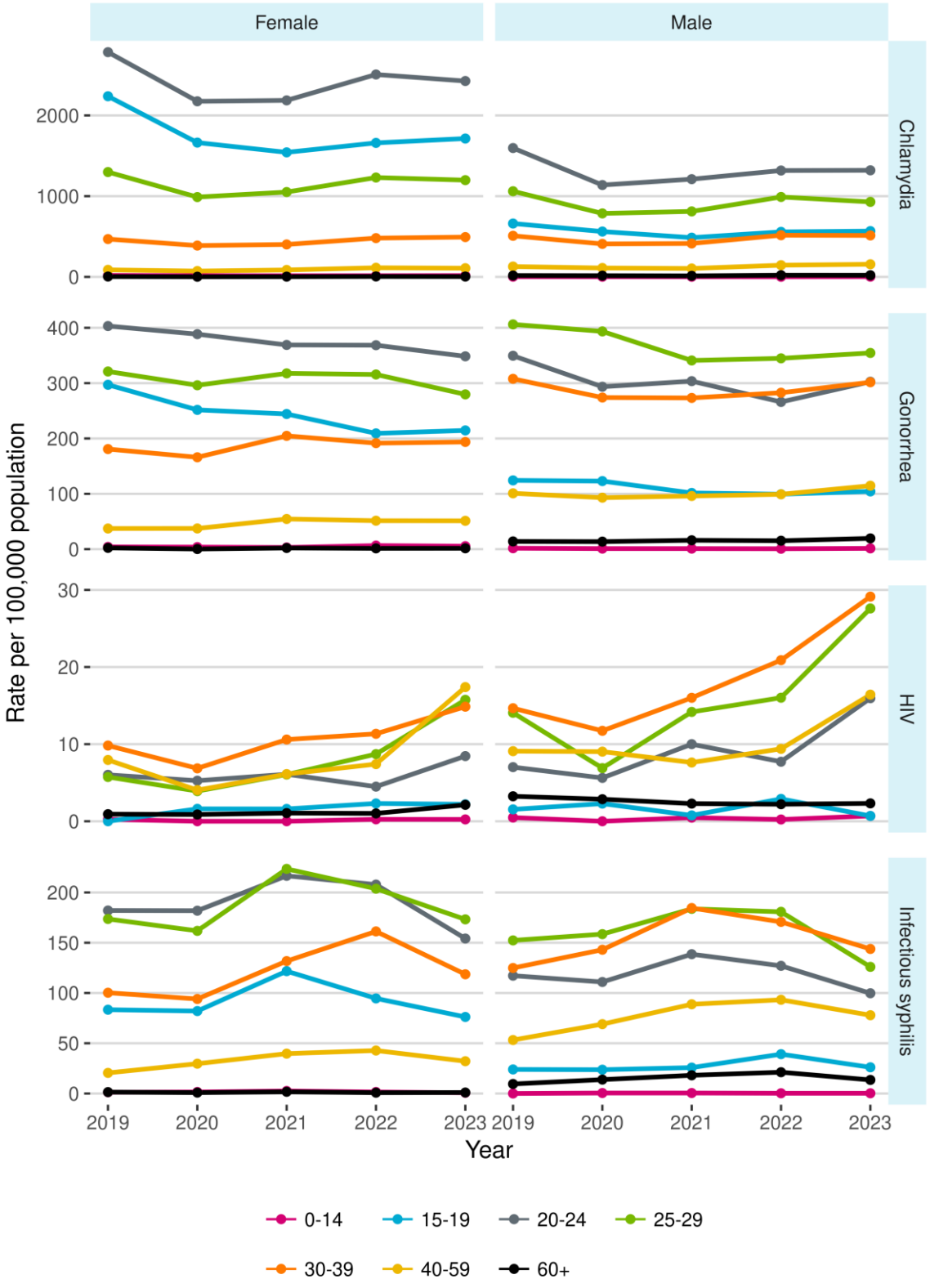


Figure 3. STI/HIV rates by age and gender in Alberta, 2019 to 2023.

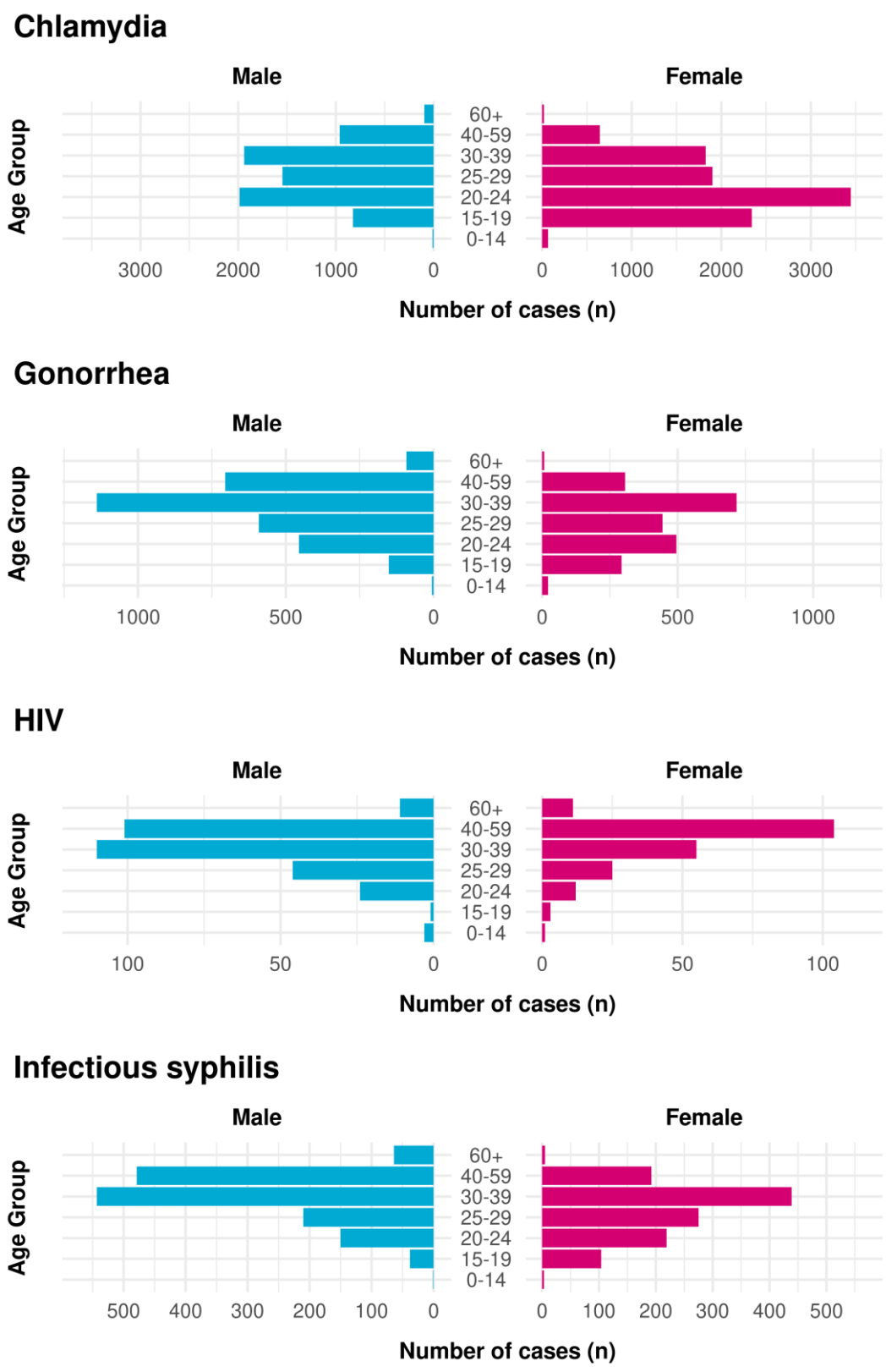


Figure 4. STI/HIV cases by age and gender in Alberta, 2023.

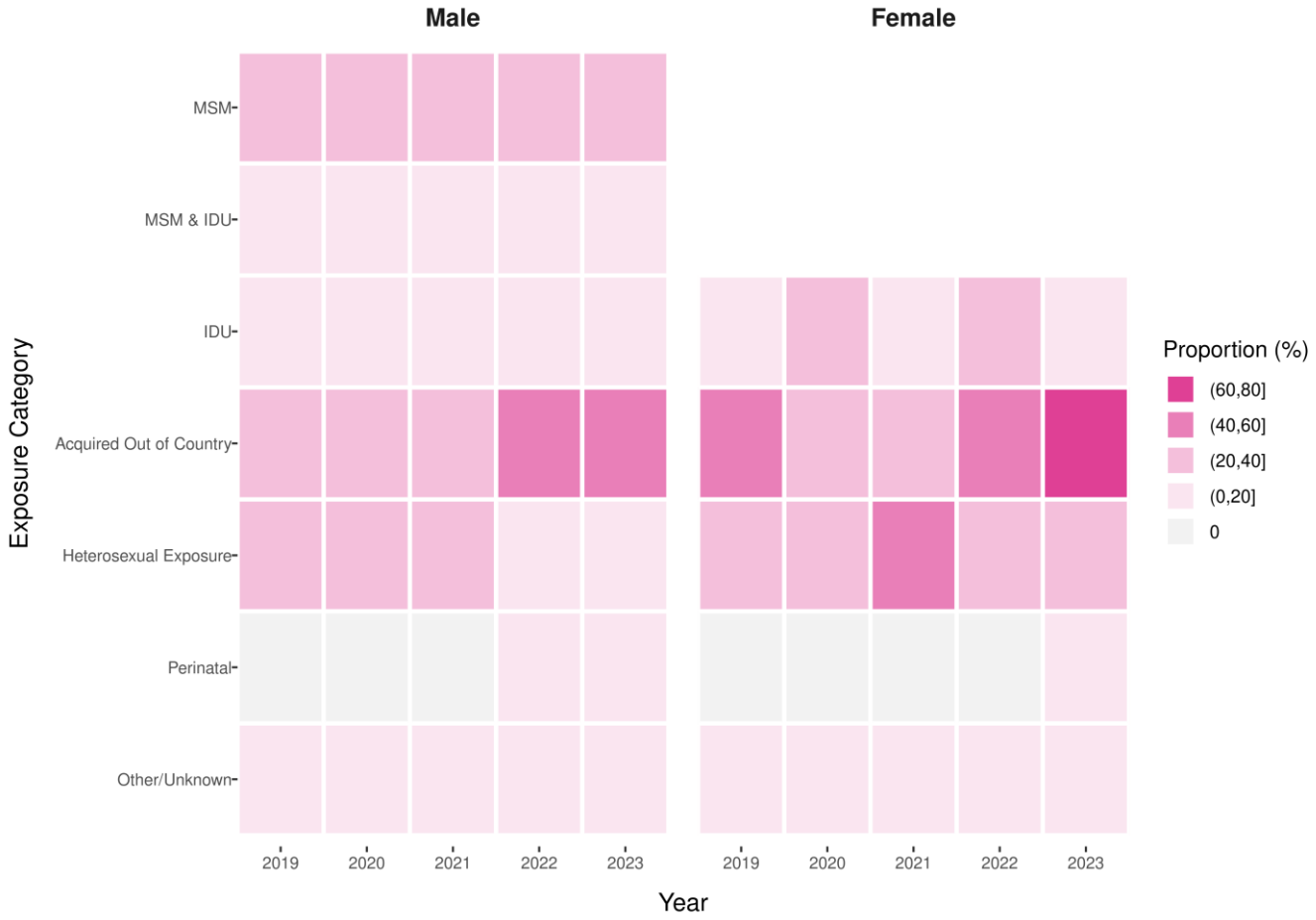


Figure 5. Proportion of HIV infections attributed to respective exposure categories in Alberta, 2019 to 2023.
Assignment to exposure categories is determined hierarchically by the most probable route of acquiring HIV.

2. South Zone Profile

Case Counts
A total of 1,380 STI/HIV cases were reported in 2023:

- Chlamydia: 908 cases, a decrease of 8.4 per cent (n = 83) compared to 2022.
- Gonorrhea: 262 cases, with no change (n = 0) compared to 2022.
- HIV: 22 cases, with no change (n = 0) compared to 2022.
- Infectious syphilis: 188 cases, an increase of 1.1 per cent (n = 2) compared to 2022.

Rate of Reported Cases
- Chlamydia: 282.9 cases per 100,000 population, a decrease of 10.3 per cent compared to 2022.
- Gonorrhea: 81.6 cases per 100,000 population, a decrease of 2.1 per cent compared to 2022.
- HIV: 6.8 cases per 100,000 population, a decrease of 2.1 per cent compared to 2022.
- Infectious syphilis: 58.6 cases per 100,000 population, a decrease of 1.0 per cent compared to 2022.

Gender and Age
- Chlamydia cases: 61.9 per cent were female, of which 52.7 per cent were 15-24 years old.
- Gonorrhea cases: 55.0 per cent were male, of which 33.3 per cent were 30-39 years old.
- HIV cases: 41.6 per cent were female, of which 37.9 per cent were 25-39 years old.
- Infectious syphilis cases: 56.9 per cent were female, of which 50.5 per cent were 20-29 years old.

HIV Exposure Categories
In 2023, the most common exposure category among both male and female cases was ‘Acquired Out of Country’, at 59.1 per cent (n = 13).

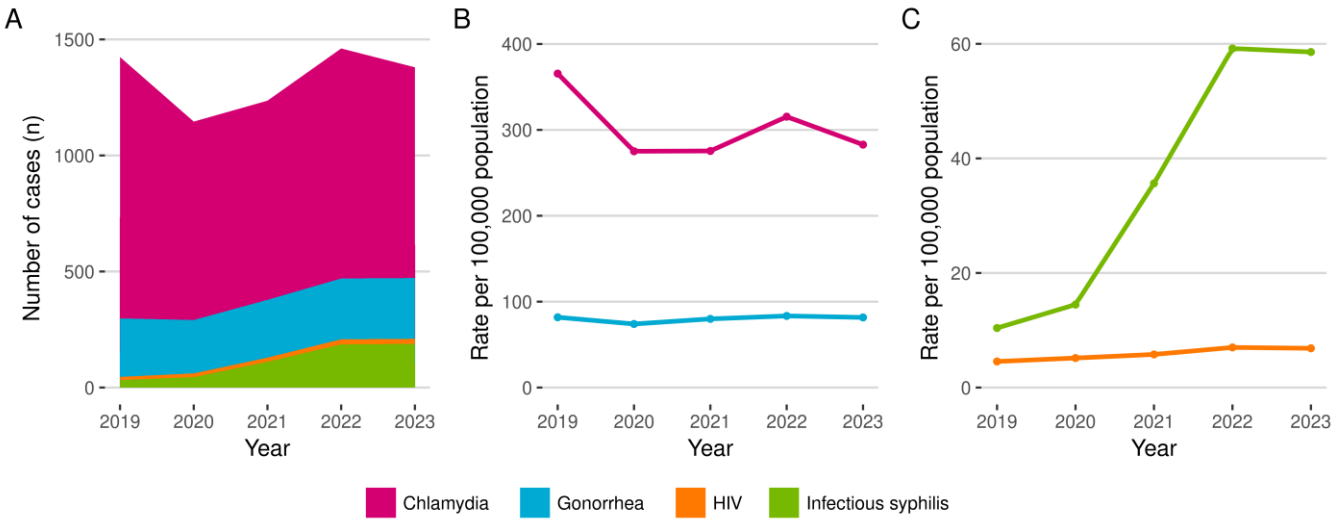


Figure 6. Counts and rates of STIs/HIV in South Zone, 2019 to 2023. (A) Counts per year grouped by infection type, (B) Rates per 100,000 population by year for chlamydia and gonorrhea, and (C) Rates per 100,000 population by year for HIV and infectious syphilis.

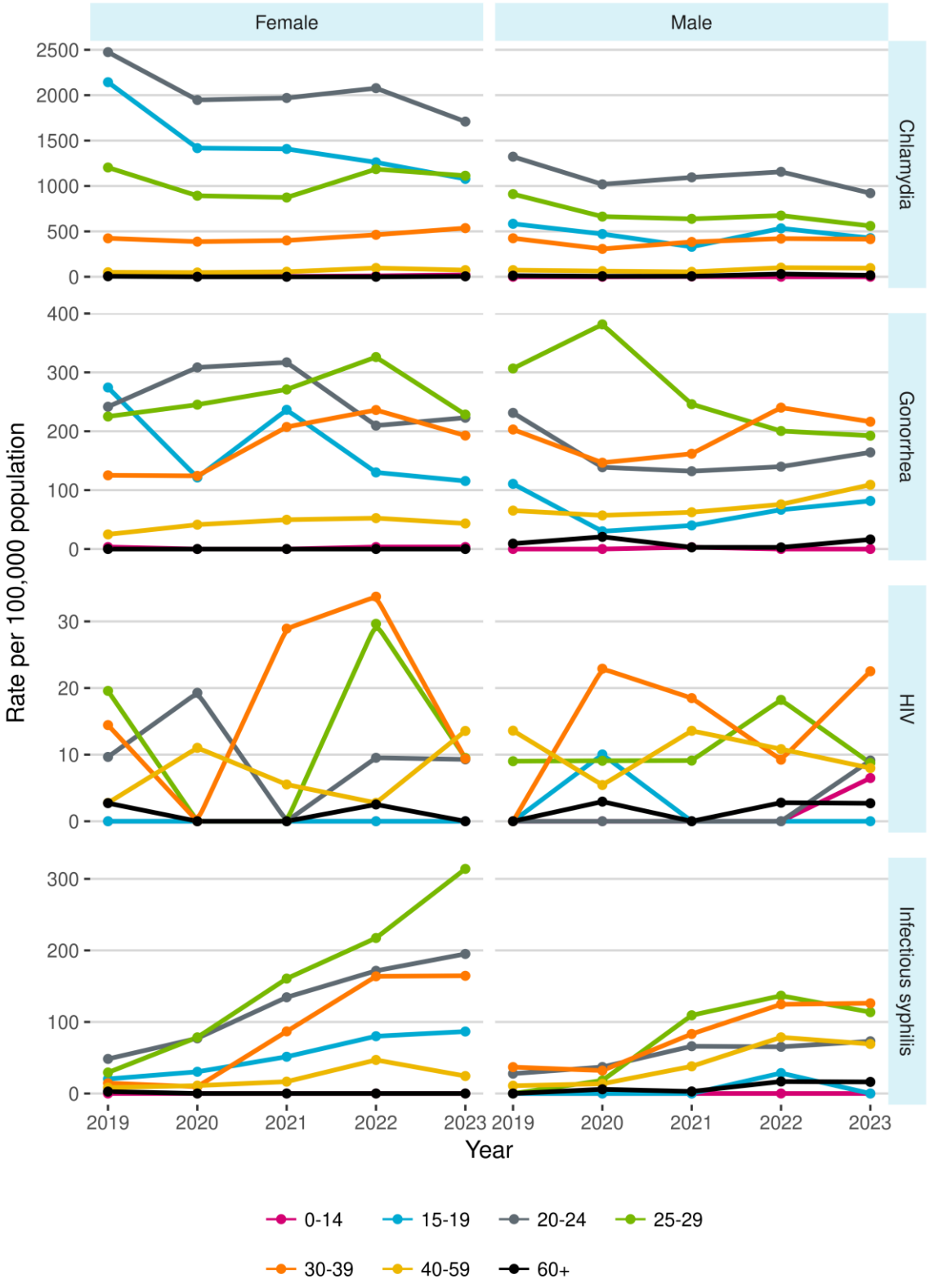


Figure 7. STI/HIV rates by age and gender in South Zone, 2019 to 2023.

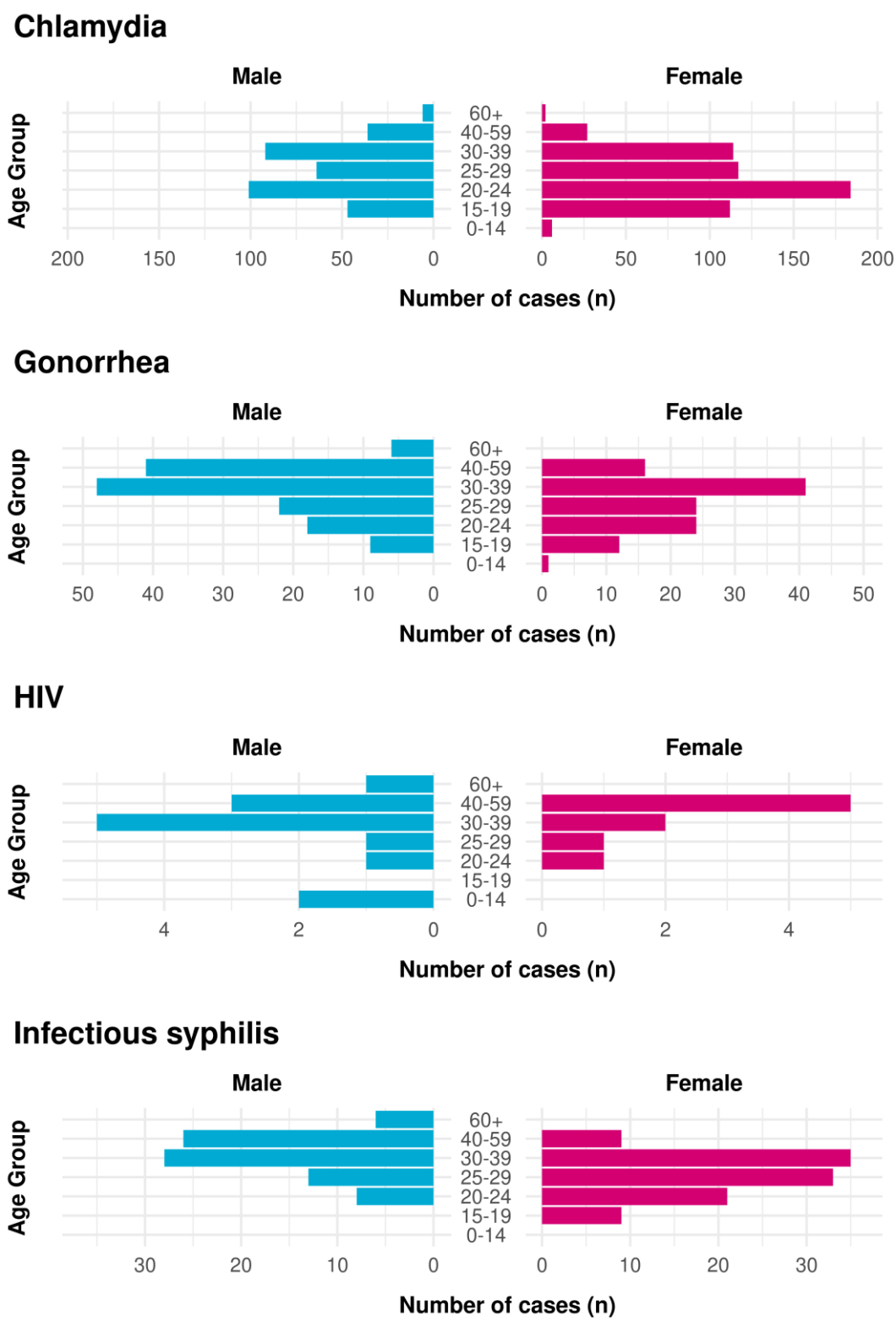


Figure 8. STI/HIV cases by age and gender in South Zone, 2023.

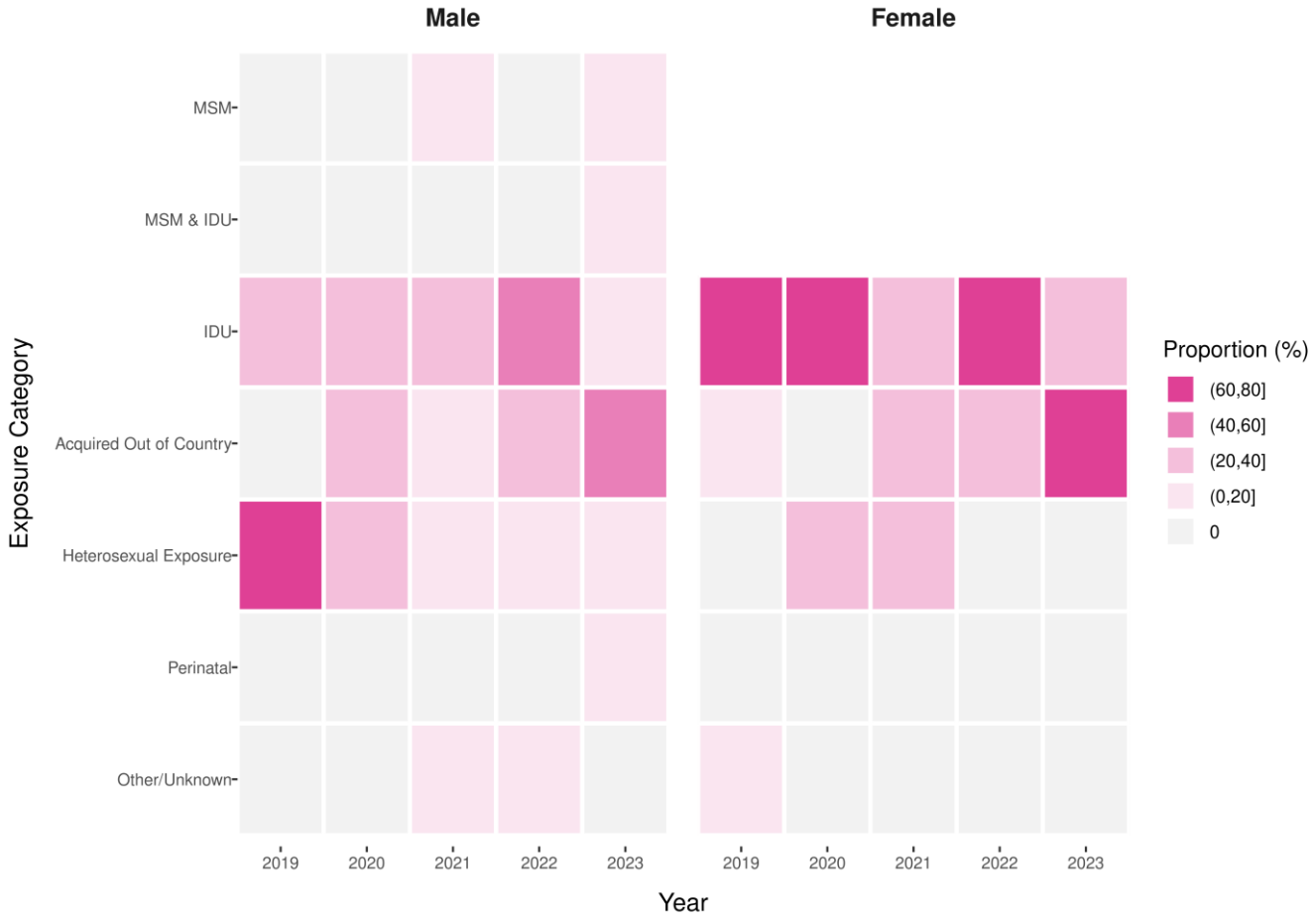


Figure 9. Proportion of HIV infections attributed to respective exposure categories in South Zone, 2019 to 2023.
Assignment to exposure categories is determined hierarchically by the most probable route of acquiring HIV.

3. Calgary Zone Profile

Case Counts

A total of 8,315 STI/HIV cases were reported in 2023:

- Chlamydia: 5,955 cases, an increase of 3.6 per cent (n = 208) compared to 2022.
- Gonorrhea: 1,516 cases, an increase of 9.1 per cent (n = 127) compared to 2022.
- HIV: 215 cases, an increase of 88.6 per cent (n = 101) compared to 2022.
- Infectious syphilis: 629 cases, a decrease of 18.7 per cent (n = 145) compared to 2022.

Rate of Reported Cases

- Chlamydia: 318.9 cases per 100,000 population, a decrease of 1.8 per cent compared to 2022.
- Gonorrhea: 81.2 cases per 100,000 population, an increase of 3.4 per cent compared to 2022.
- HIV: 11.5 cases per 100,000 population, an increase of 78.7 per cent compared to 2022.
- Infectious syphilis: 33.7 cases per 100,000 population, a decrease of 23.0 per cent compared to 2022.

Gender and Age

- Chlamydia cases: 55.7 per cent were female, of which 58.4 per cent were 15-24 years old.
- Gonorrhea cases: 68.9 per cent were male, of which 37.6 per cent were 30-39 years old.
- HIV cases: 41.6 per cent were female, of which 37.9 per cent were 25-39 years old.
- Infectious syphilis cases: 64.2 per cent were male, of which 39.1 per cent were 30-39 years old.

HIV Exposure Categories

In 2023, the most common exposure category among both male and female cases was ‘Acquired Out of Country’, at 64.7 per cent (n = 139).

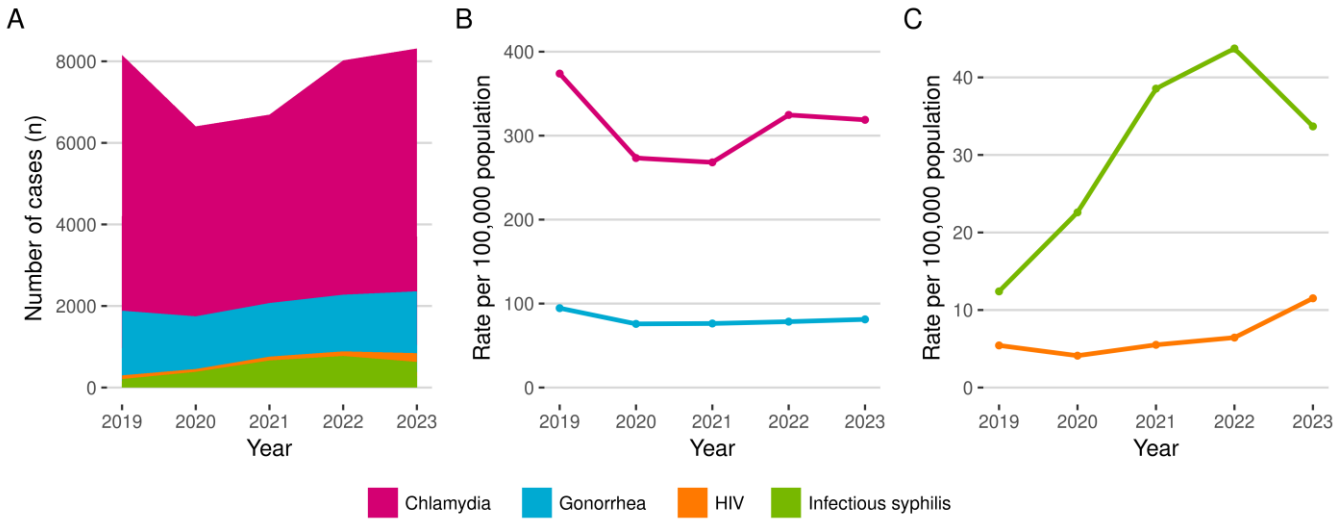


Figure 10. Counts and rates of STIs/HIV in Calgary Zone, 2019 to 2023. (A) Counts per year grouped by infection type, (B) Rates per 100,000 population by year for chlamydia and gonorrhea, and (C) Rates per 100,000 population by year for HIV and infectious syphilis.

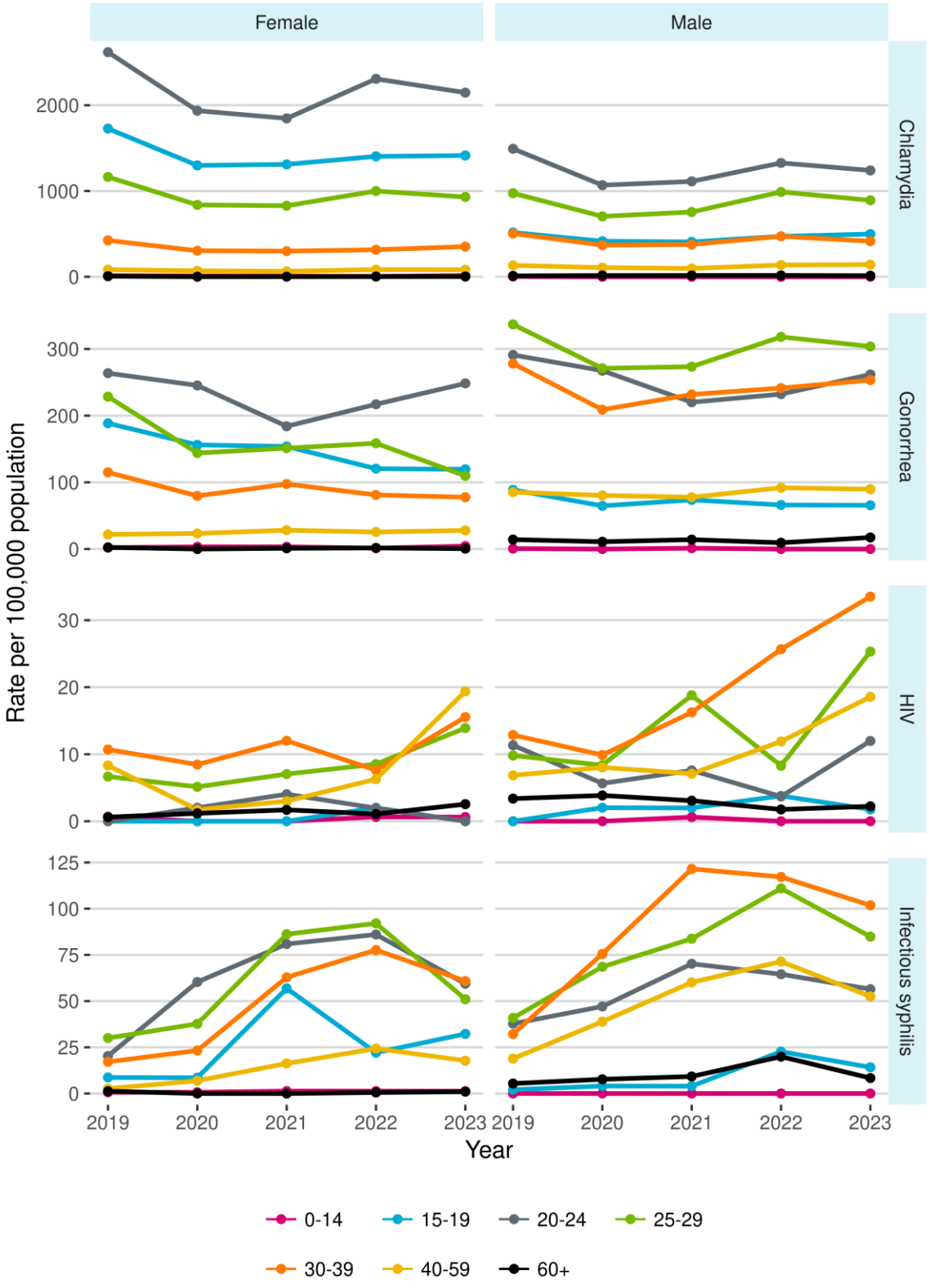


Figure 11. STI/HIV rates by age and gender in Calgary Zone, 2019 to 2023.

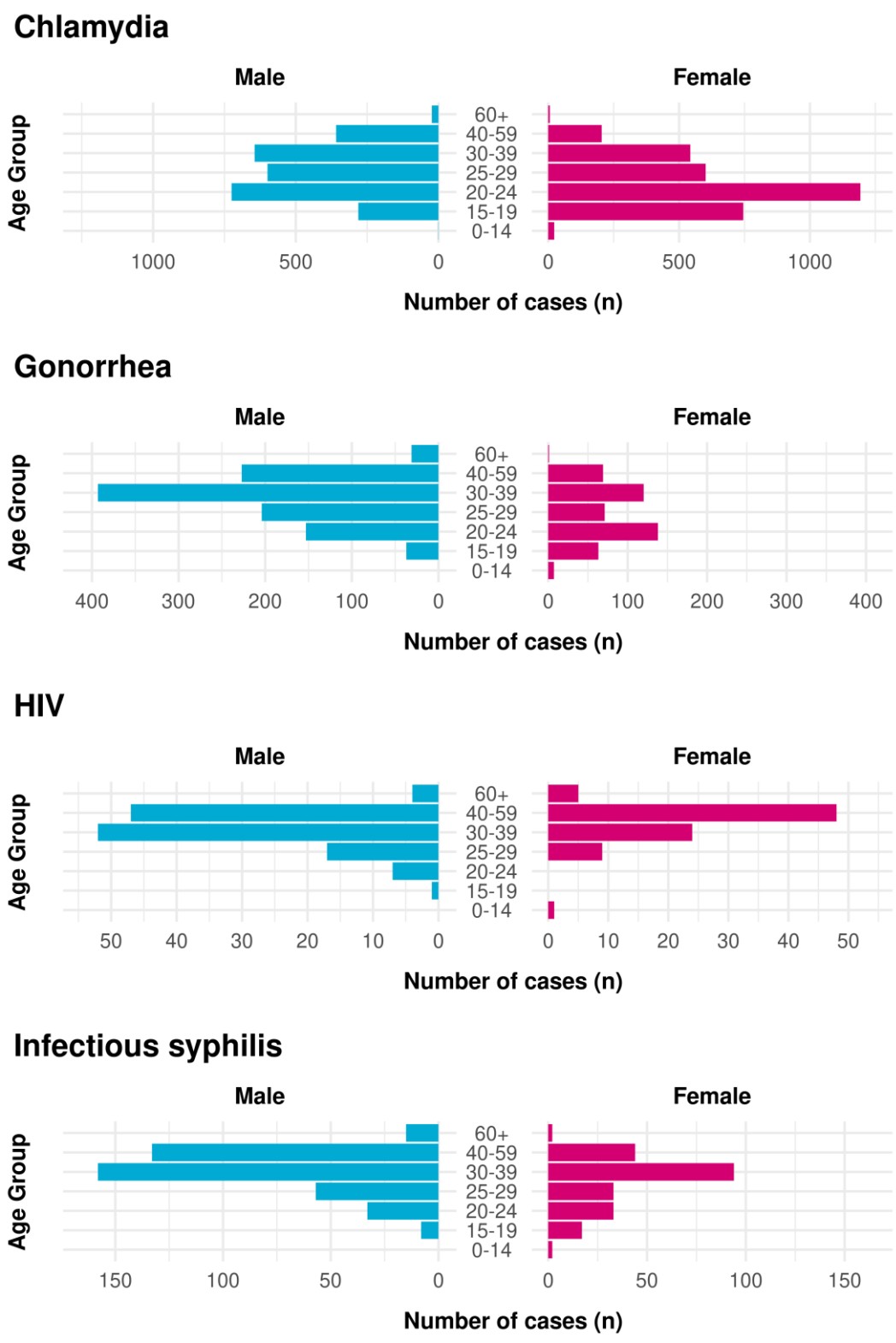


Figure 12. STI/HIV cases by age and gender in Calgary Zone, 2023.

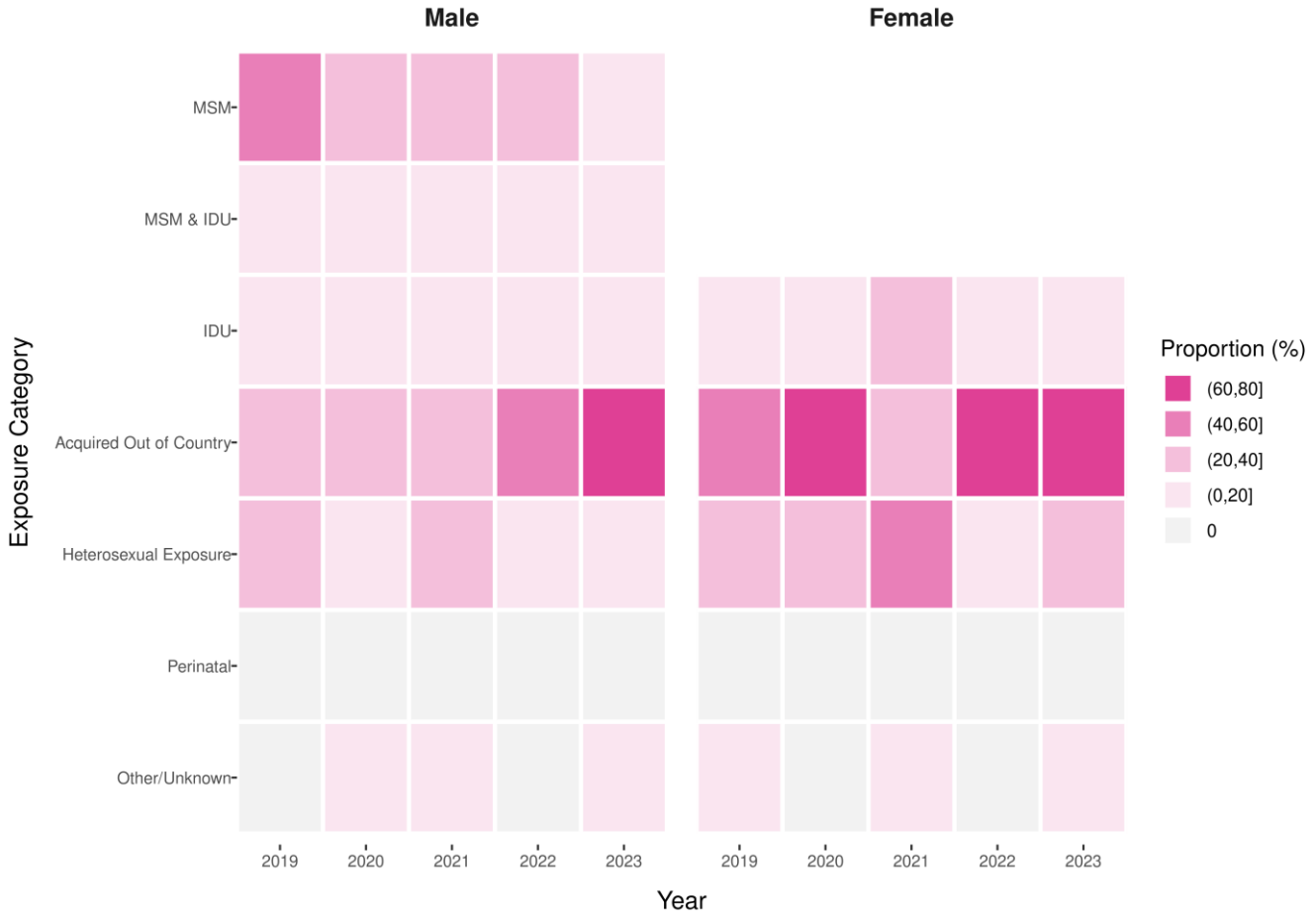


Figure 13. Proportion of HIV infections attributed to respective exposure categories in Calgary Zone, 2019 to 2023.
Assignment to exposure categories is determined hierarchically by the most probable route of acquiring HIV.

4. Central Zone Profile

Case Counts
A total of 2,385 STI/HIV cases were reported in 2023:

- Chlamydia: 1,738 cases, an increase of 7.8 per cent (n = 126) compared to 2022.
- Gonorrhea: 374 cases, a decrease of 27.2 per cent (n = 140) compared to 2022.
- HIV: 21 cases, with no change (n = 0) compared to 2022.
- Infectious syphilis: 252 cases, a decrease of 40.1 per cent (n = 169) compared to 2022.

Rate of Reported Cases
- Chlamydia: 357.8 cases per 100,000 population, an increase of 5.9 per cent compared to 2022.
- Gonorrhea: 77 cases per 100,000 population, a decrease of 28.6 per cent compared to 2022.
- HIV: 4.3 cases per 100,000 population, a decrease of 1.8 per cent compared to 2022.
- Infectious syphilis: 51.9 cases per 100,000 population, a decrease of 41.2 per cent compared to 2022.

Gender and Age
- Chlamydia cases: 64.4 per cent were female, of which 64.7 per cent were 15-24 years old.
- Gonorrhea cases: 50.8 per cent were female, of which 50.5 per cent were 20-29 years old.
- HIV cases: 41.6 per cent were female, of which 37.9 per cent were 25-39 years old.
- Infectious syphilis cases: 52.8 per cent were female, of which 47.4 per cent were 20-29 years old.

HIV Exposure Categories
In 2023, the most common exposure category among male cases was ‘MSM’, accounting for 35.7 per cent (n = 5). Among female cases, the most common exposure category was ‘Heterosexual Exposure’, accounting for 42.9 per cent (n = 3).

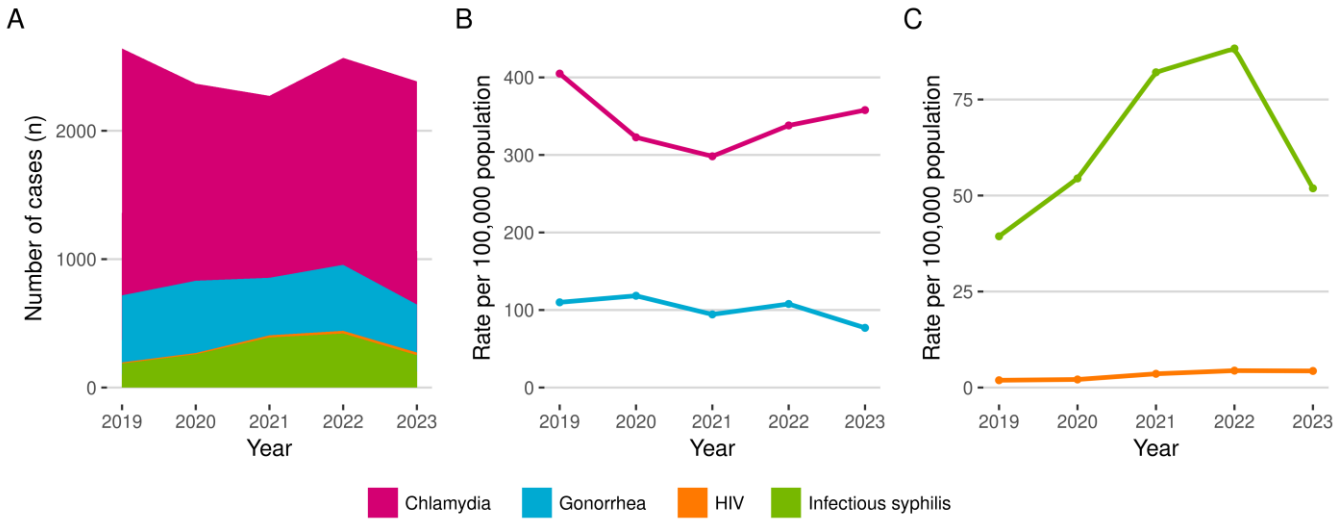


Figure 14. Counts and rates of STIs/HIV in Central Zone, 2019 to 2023. (A) Counts per year grouped by infection type, (B) Rates per 100,000 population by year for chlamydia and gonorrhea, and (C) Rates per 100,000 population by year for HIV and infectious syphilis.

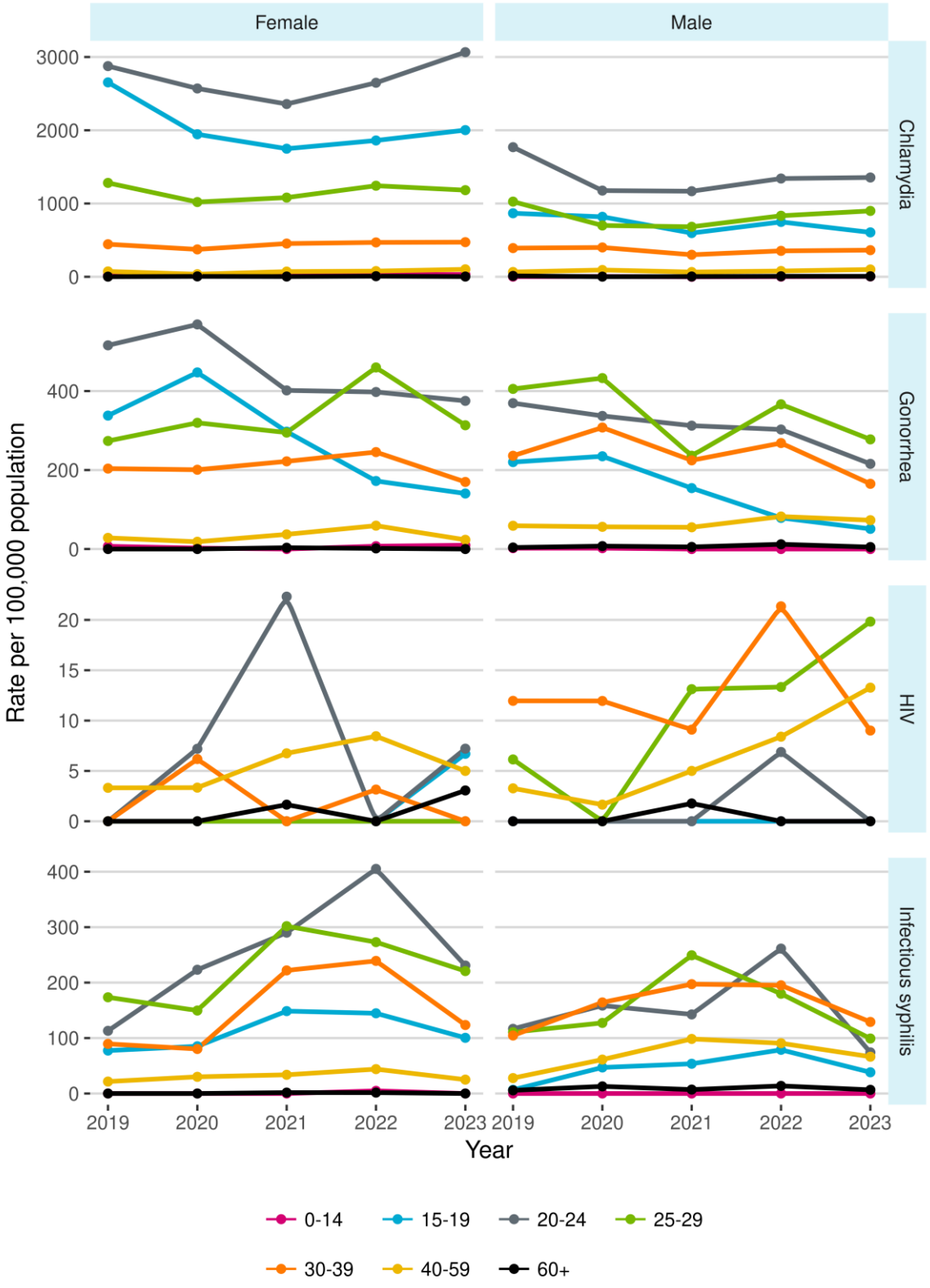


Figure 15. STI/HIV rates by age and gender in Central Zone, 2019 to 2023.

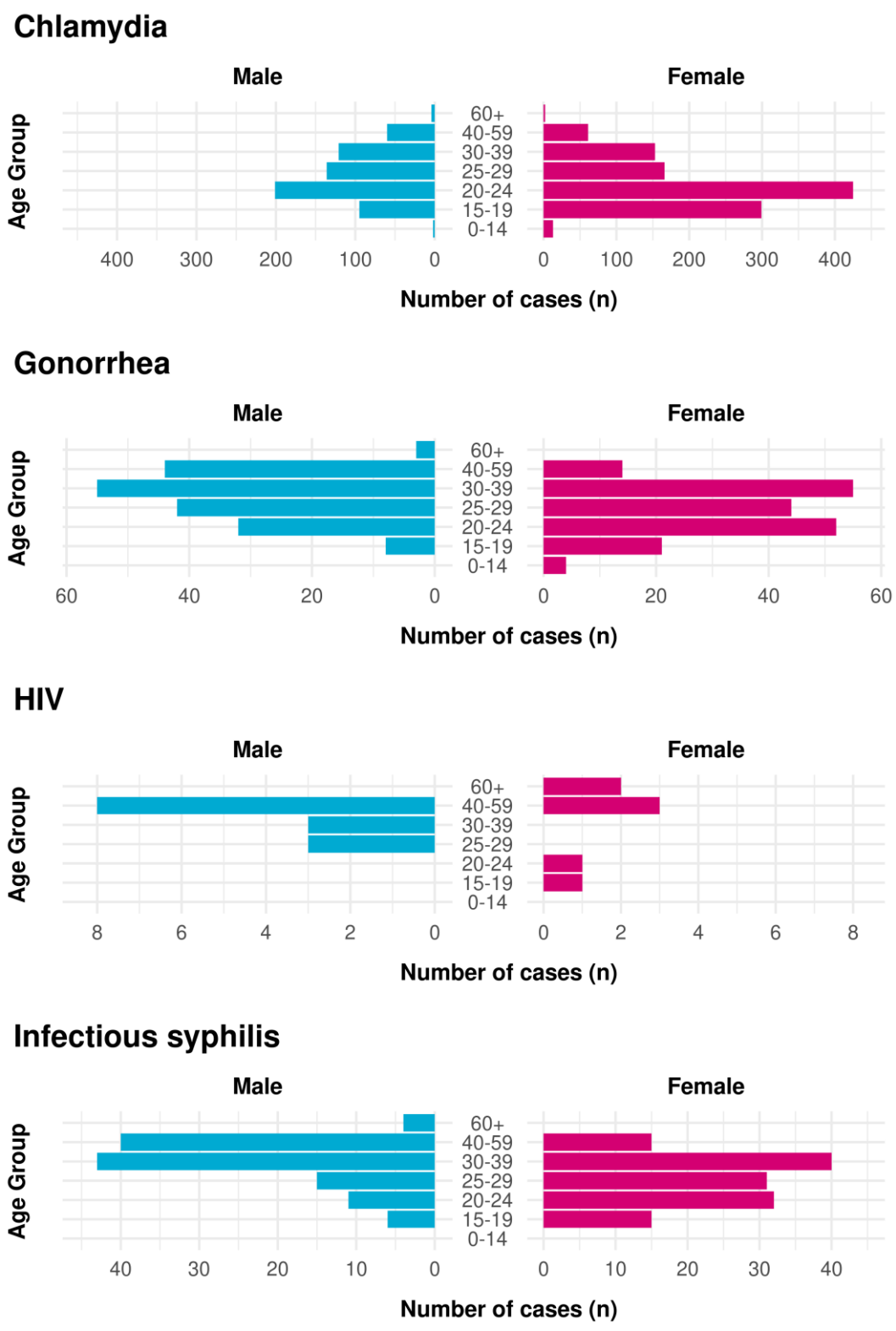


Figure 16. STI/HIV cases by age and gender in Central Zone, 2023.

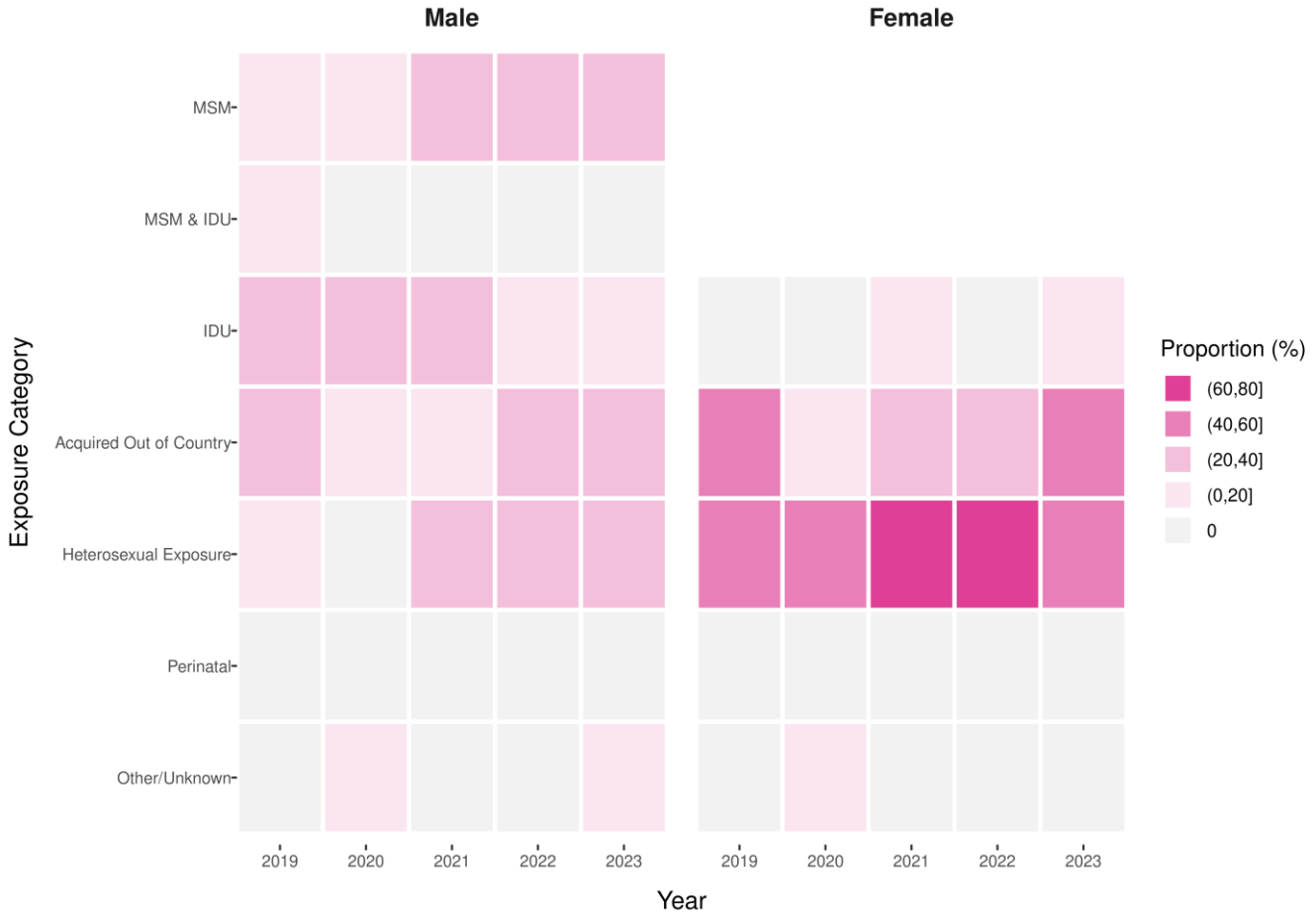


Figure 17. Proportion of HIV infections attributed to respective exposure categories in Central Zone, 2019 to 2023.
Assignment to exposure categories is determined hierarchically by the most probable route of acquiring HIV.

5. Edmonton Zone Profile

Case Counts
A total of 9,713 STI/HIV cases were reported in 2023:

- Chlamydia: 6,083 cases, an increase of 4.6 per cent (n = 265) compared to 2022.
- Gonorrhea: 2,428 cases, an increase of 17.9 per cent (n = 369) compared to 2022.
- HIV: 211 cases, an increase of 91.8 per cent (n = 101) compared to 2022.
- Infectious syphilis: 991 cases, a decrease of 14.6 per cent (n = 169) compared to 2022.

Rate of Reported Cases
- Chlamydia: 395.1 cases per 100,000 population, an increase of 0.3 per cent compared to 2022.
- Gonorrhea: 157.7 cases per 100,000 population, an increase of 13.1 per cent compared to 2022.
- HIV: 13.7 cases per 100,000 population, an increase of 84.0 per cent compared to 2022.
- Infectious syphilis: 64.4 cases per 100,000 population, a decrease of 18.0 per cent compared to 2022.

Gender and Age
- Chlamydia cases: 56.8 per cent were female, of which 52.9 per cent were 15-24 years old.
- Gonorrhea cases: 54.8 per cent were male, of which 37.1 per cent were 30-39 years old.
- HIV cases: 41.6 per cent were female, of which 37.9 per cent were 25-39 years old.
- Infectious syphilis cases: 57.7 per cent were male, of which 35.8 per cent were 30-39 years old.

HIV Exposure Categories
In 2023, the most common exposure category among both male and female cases was ‘Acquired Out of Country’, at 50.7 per cent (n = 107).

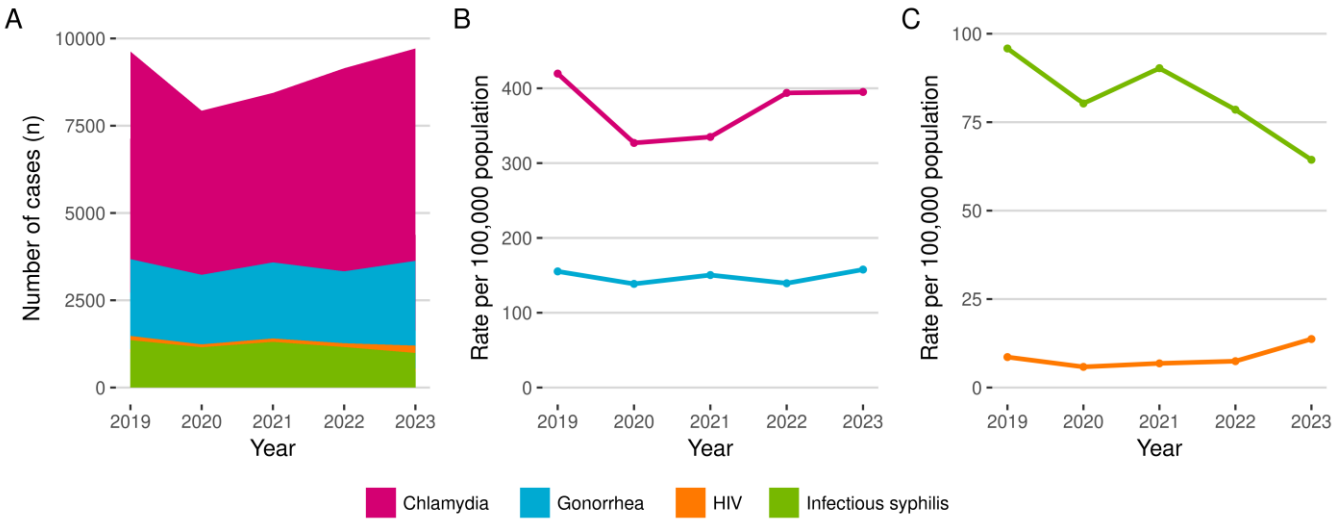


Figure 18. Counts and rates of STIs/HIV in Edmonton Zone, 2019 to 2023. (A) Counts per year grouped by infection type, (B) Rates per 100,000 population by year for chlamydia and gonorrhea, and (C) Rates per 100,000 population by year for HIV and infectious syphilis.

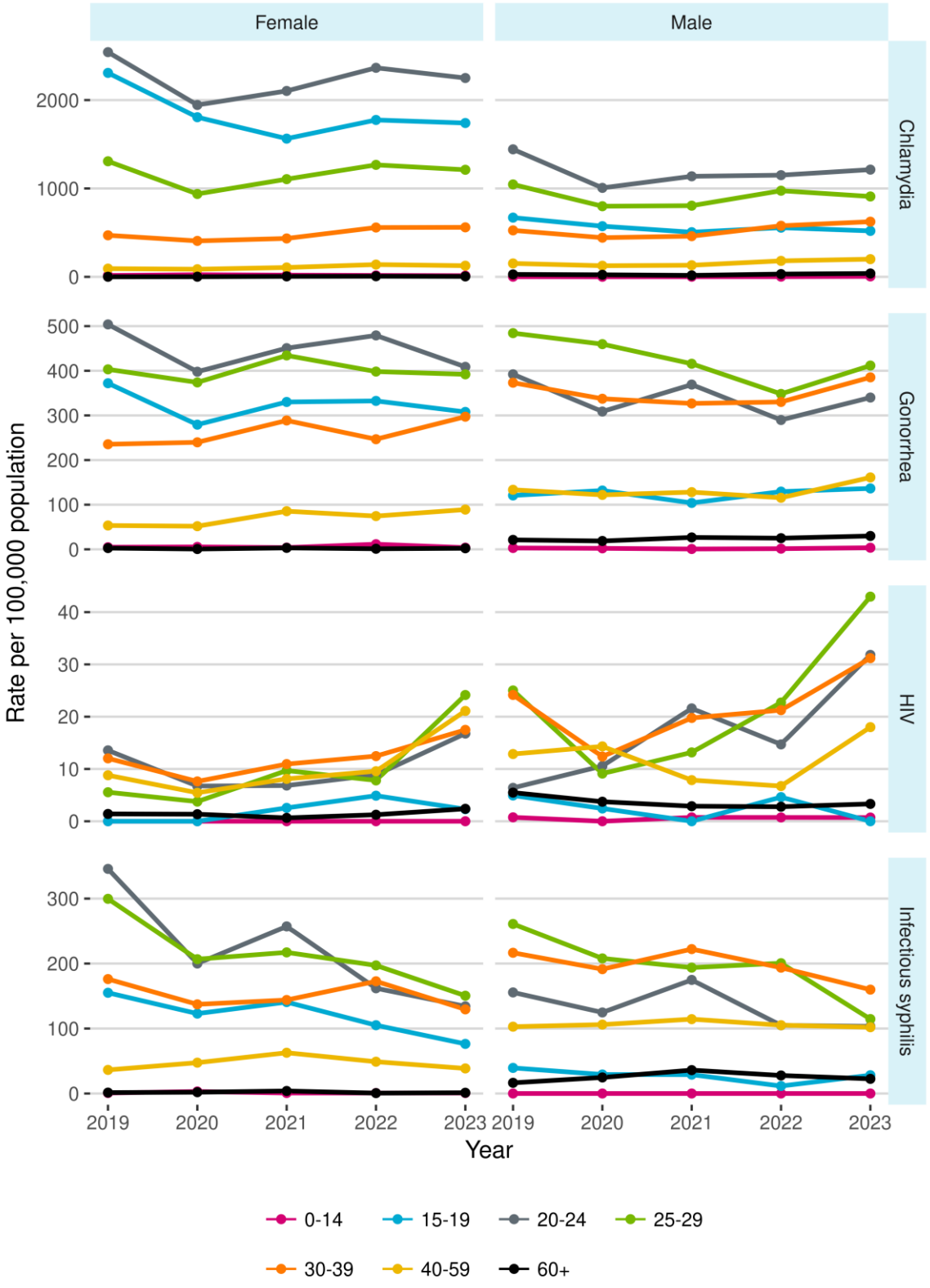


Figure 19. STI/HIV rates by age and gender in Edmonton Zone, 2019 to 2023.

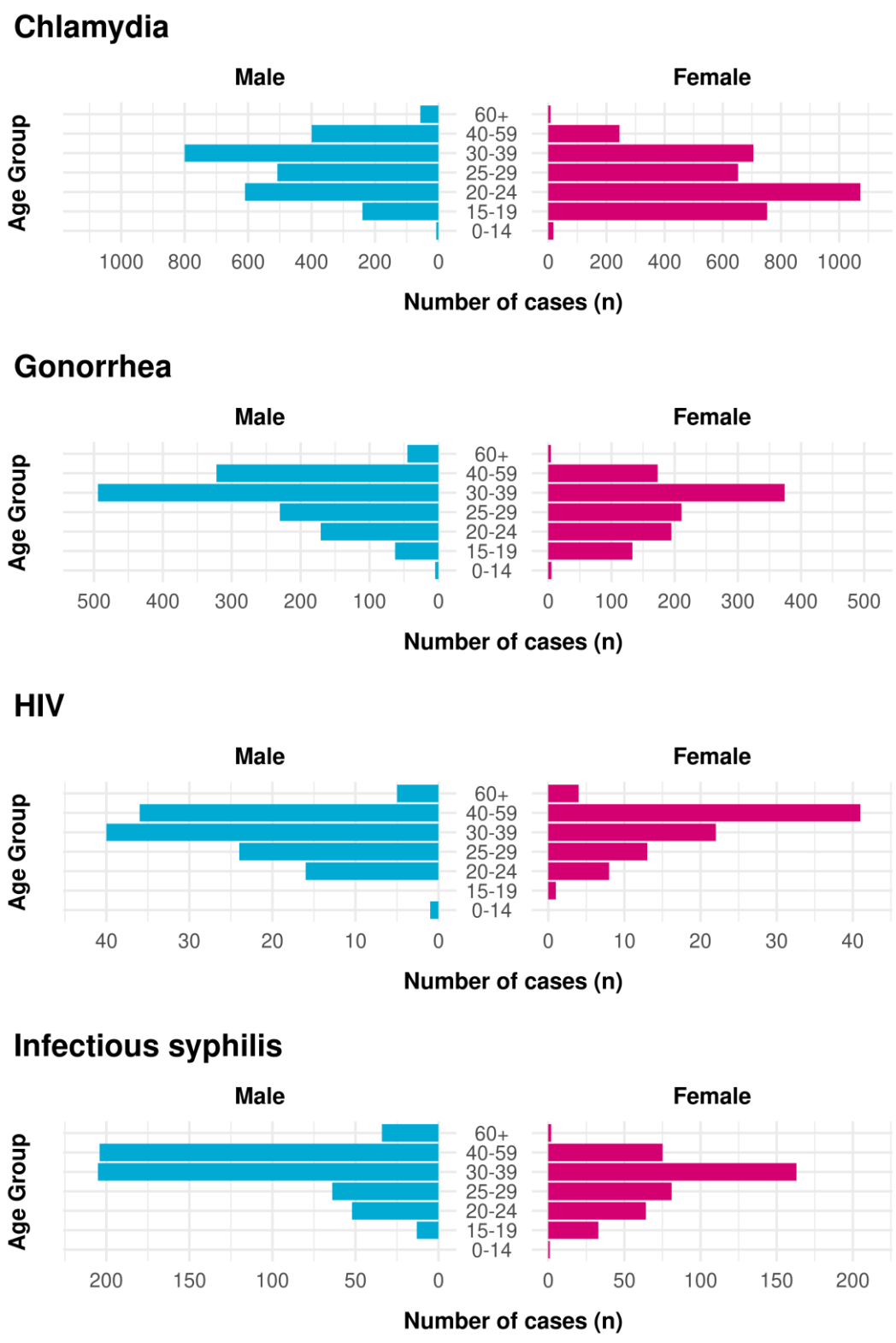


Figure 20. STI/HIV cases by age and gender in Edmonton Zone, 2023.

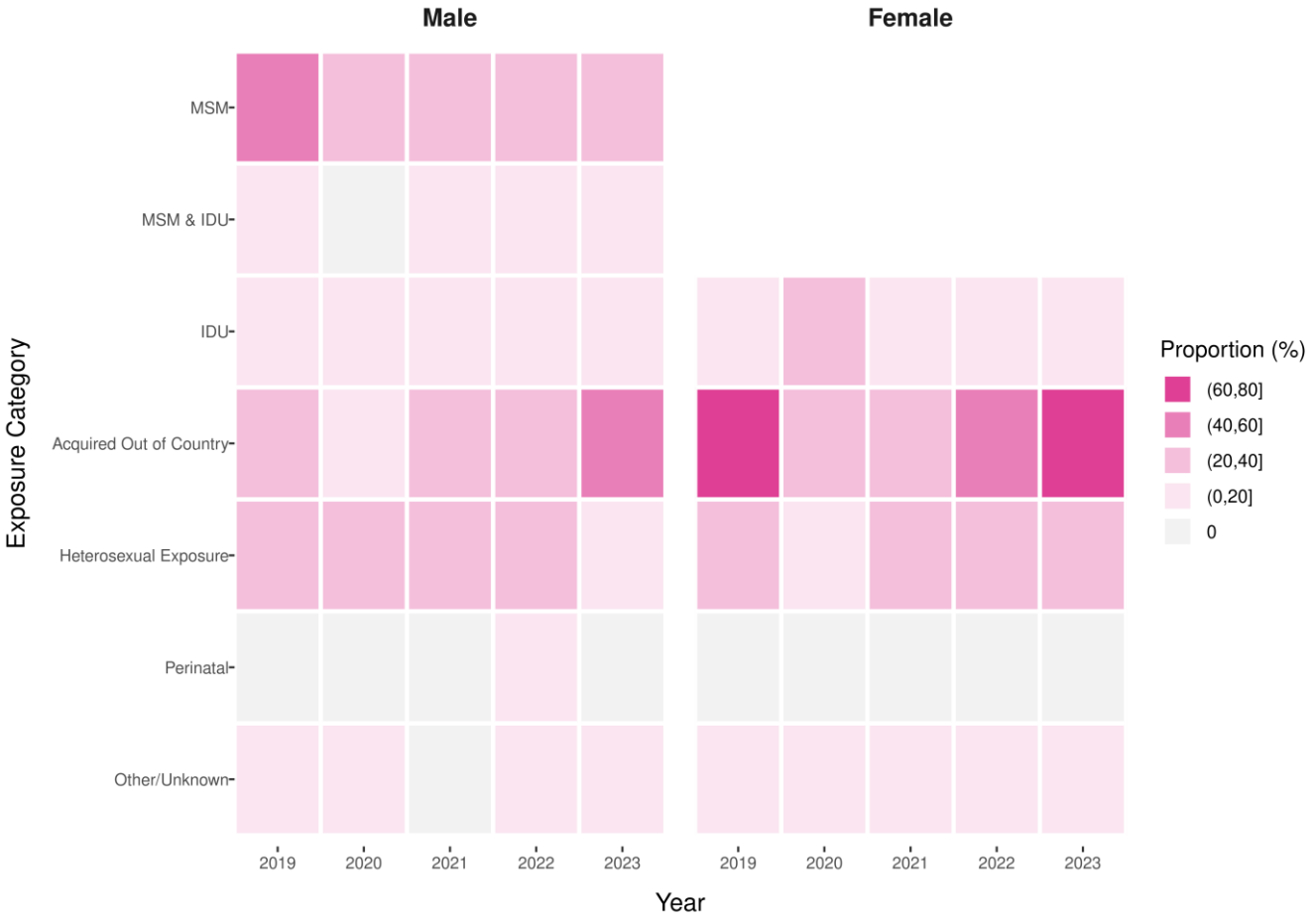


Figure 21. Proportion of HIV infections attributed to respective exposure categories in Edmonton Zone, 2019 to 2023.
Assignment to exposure categories is determined hierarchically by the most probable route of acquiring HIV.

6. North Zone Profile

Case Counts
A total of 4,145 STI/HIV cases were reported in 2023:

- Chlamydia: 2,685 cases, an increase of 12.6 per cent (n = 301) compared to 2022.
- Gonorrhea: 787 cases, an increase of 11.0 per cent (n = 78) compared to 2022.
- HIV: 36 cases, an increase of 44.0 per cent (n = 11) compared to 2022.
- Infectious syphilis: 637 cases, a decrease of 16.5 per cent (n = 126) compared to 2022.

Rate of Reported Cases

- Chlamydia: 558.1 cases per 100,000 population, an increase of 10.6 per cent compared to 2022.
- Gonorrhea: 163.6 cases per 100,000 population, an increase of 9.0 per cent compared to 2022.
- HIV: 7.5 cases per 100,000 population, an increase of 41.4 per cent compared to 2022.
- Infectious syphilis: 132.4 cases per 100,000 population, a decrease of 18.0 per cent compared to 2022.

Gender and Age

- Chlamydia cases: 61.7 per cent were female, of which 55.0 per cent were 15-24 years old.
- Gonorrhea cases: 51.5 per cent were male, of which 39.8 per cent were 20-29 years old.
- HIV cases: 41.6 per cent were female, of which 37.9 per cent were 25-39 years old.
- Infectious syphilis cases: 53.1 per cent were female, of which 46.4 per cent were 20-29 years old.

HIV Exposure Categories
In 2023, the most common exposure category among male cases was ‘Acquired Out of Country’, accounting for 27.8 per cent (n = 5). Among female cases, the most common exposure category was ‘Heterosexual Exposure’, accounting for 50 per cent (n = 9).

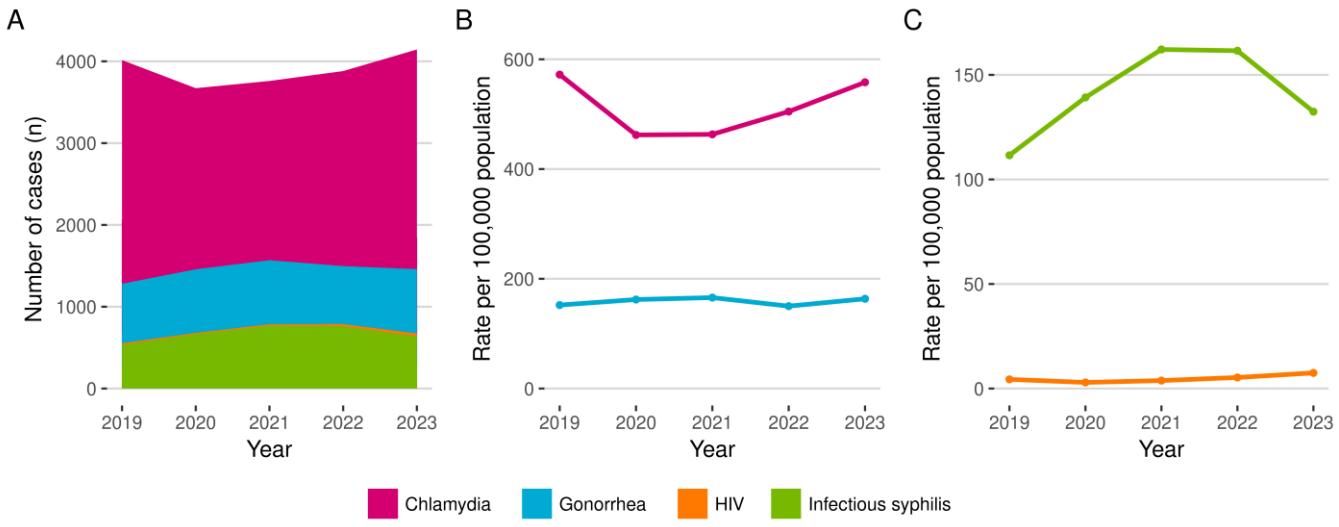


Figure 22. Counts and rates of STIs/HIV in North Zone, 2019 to 2023. (A) Counts per year grouped by infection type, (B) Rates per 100,000 population by year for chlamydia and gonorrhea, and (C) Rates per 100,000 population by year for HIV and infectious syphilis.

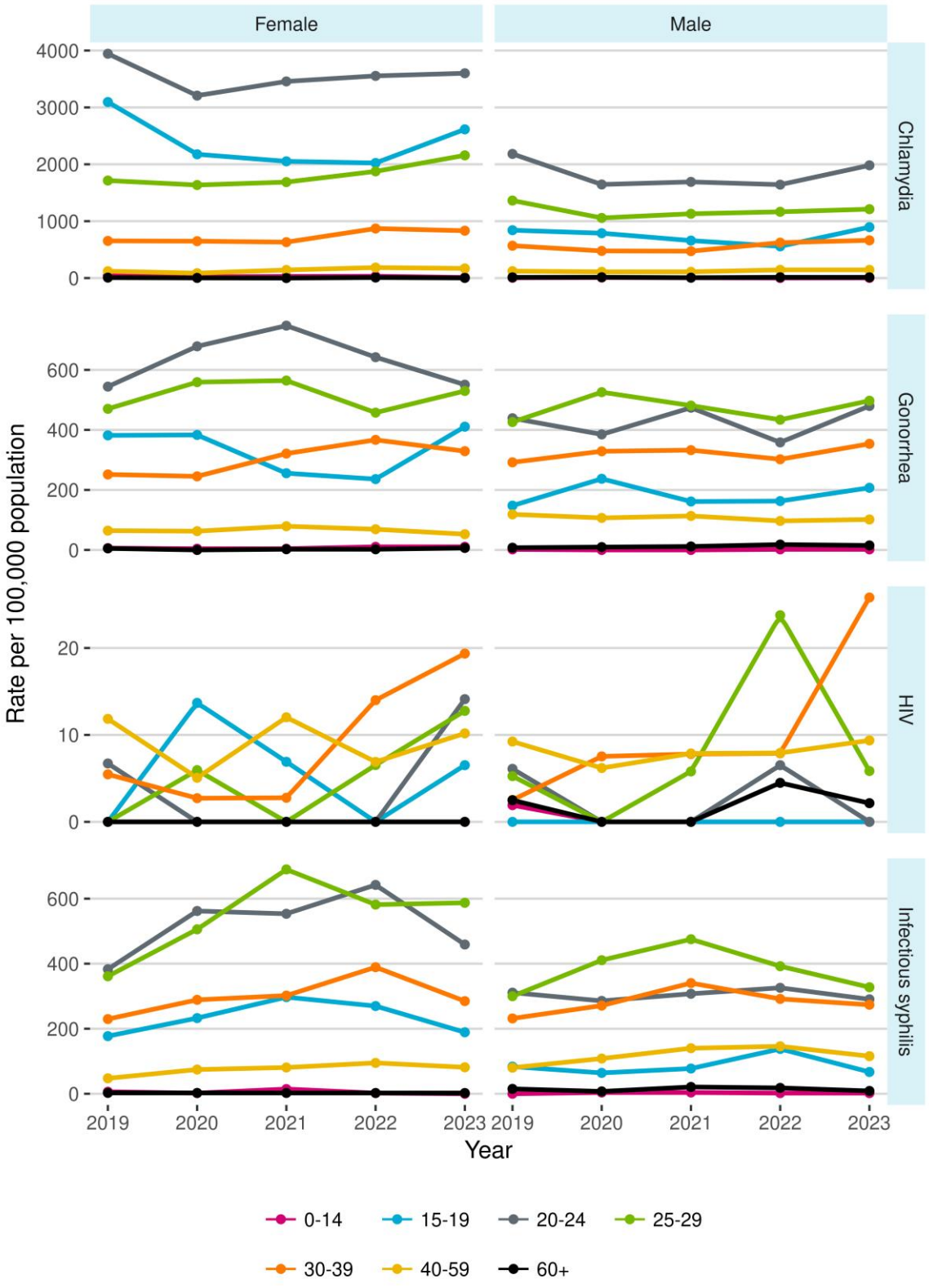


Figure 23. STI/HIV rates by age and gender in North Zone, 2019 to 2023.

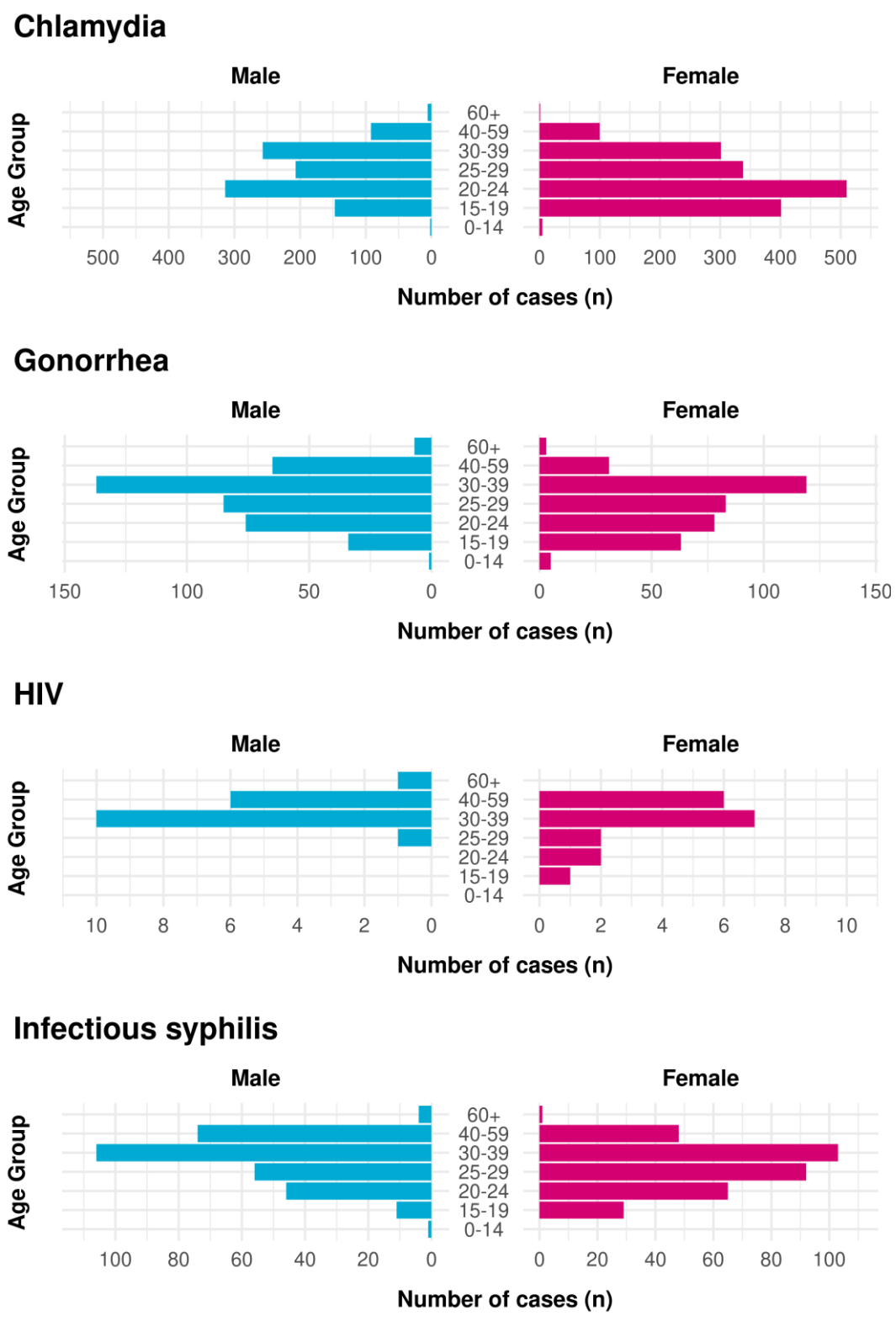


Figure 24. STI/HIV cases by age and gender in North Zone, 2023.

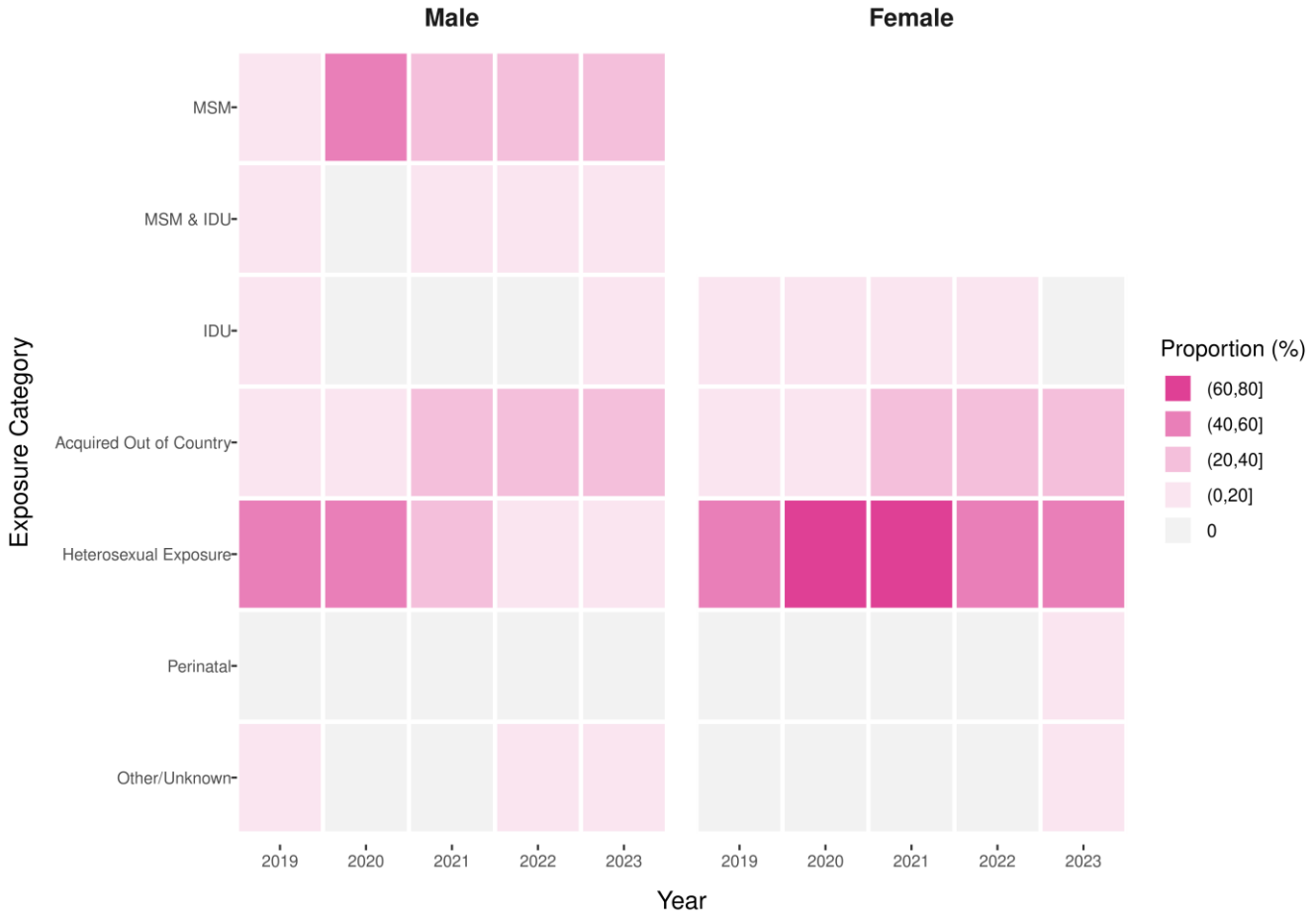
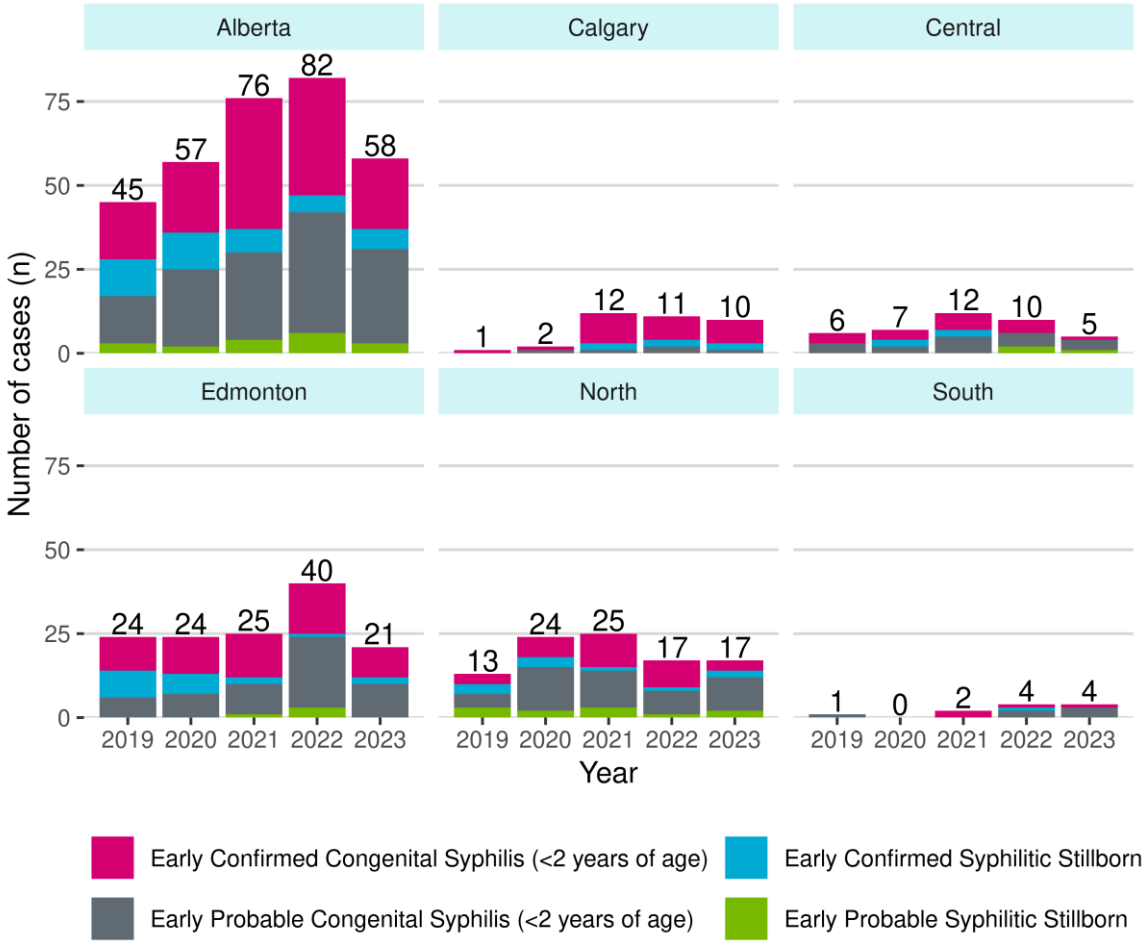


Figure 25. Proportion of HIV infections attributed to respective exposure categories in North Zone, 2019 to 2023.
Assignment to exposure categories is determined hierarchically by the most probable route of acquiring HIV.

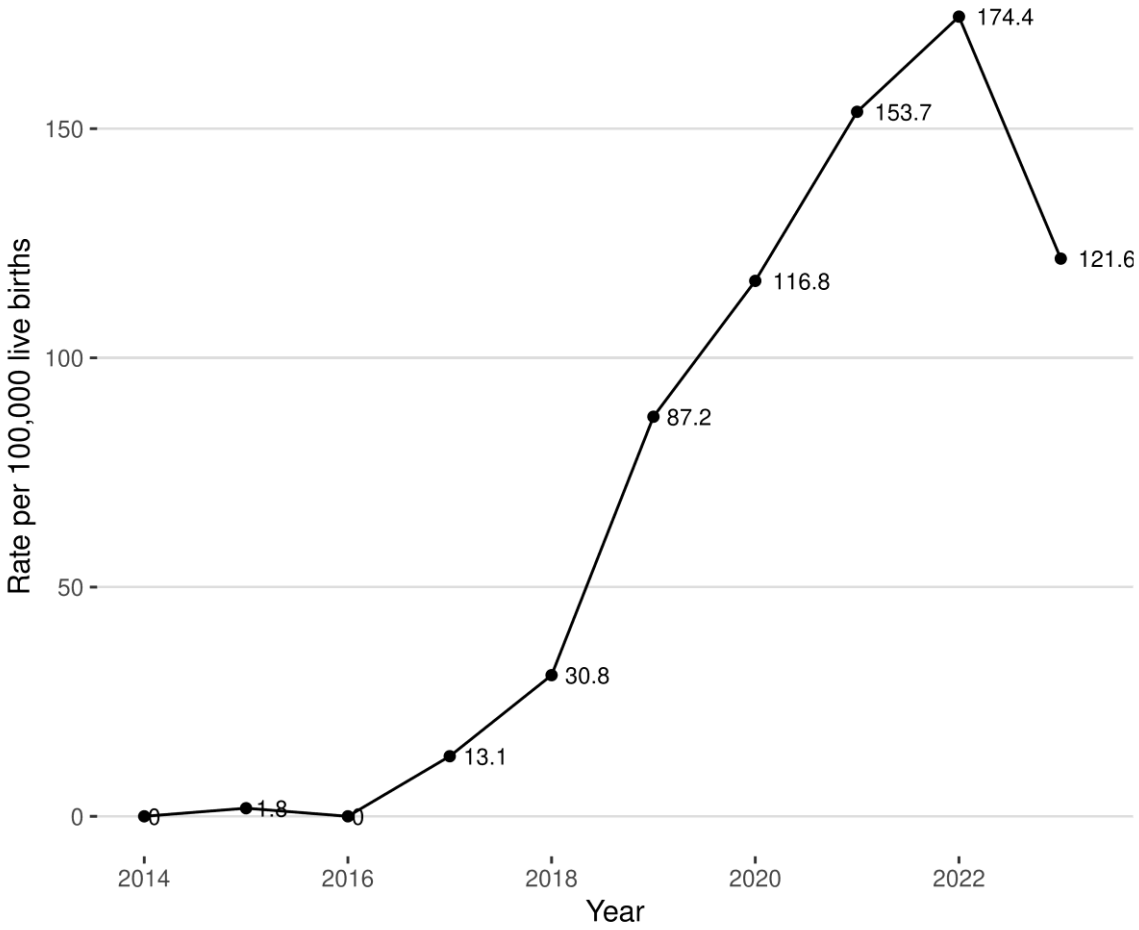
Annex 1: Congenital Syphilis in Alberta

With rising rates of infectious syphilis in Alberta, there has been increased efforts to test, treat, and prevent congenital syphilis.

- A total of 342 congenital syphilis cases have been diagnosed between 2014 and 2023, 59 of which were stillborn.
- Rates of congenital syphilis (live and stillborn) per 100,000 live births have increased from 0.0 to 121.6 between 2014 and 2023.
- In 2023, 58 congenital syphilis cases were reported, a decrease of 29.3 per cent (n = 24) compared to 2022. The rate was 121.6 cases per 100,000 live births, a decrease of 30.3 per cent compared to 2022.
- Cases were diagnosed in 2023 across all five AHS Zones (Edmonton, Central, Calgary, South, North), with the majority (n = 21) in Edmonton Zone.
- Pregnant persons with untreated syphilis can also result in miscarriages. Since routine surveillance does not capture miscarriage data, the reported impact of congenital syphilis in Alberta is expected to be under-estimated.



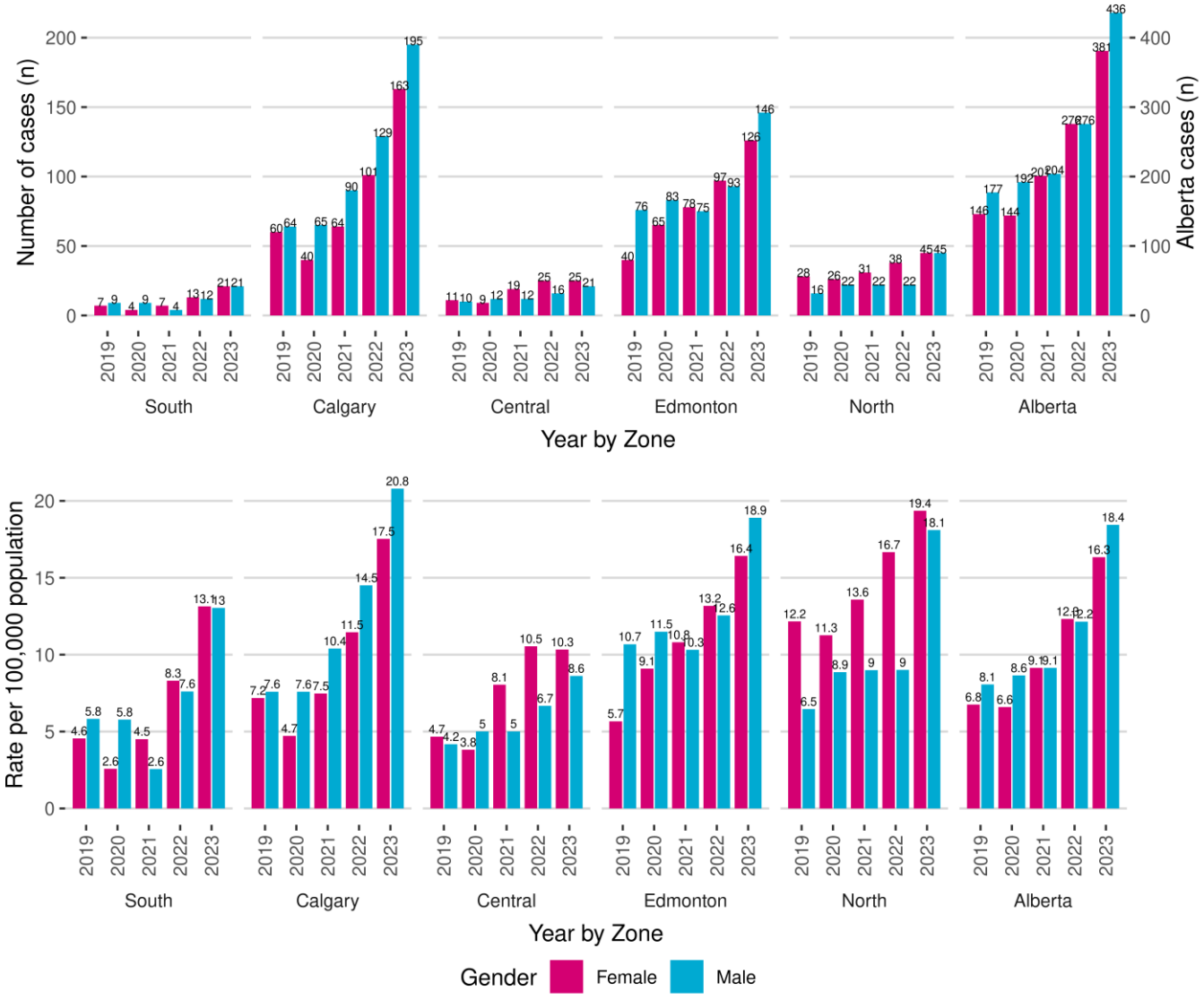
Annex Figure 1. Counts of congenital syphilis for Alberta and AHS Zones, 2019 to 2023. Cases where the zone is unknown are included in the Alberta total.



Annex Figure 2. Rate of congenital syphilis in Alberta, 2014 to 2023.

Annex 2: Non-infectious Syphilis in Alberta

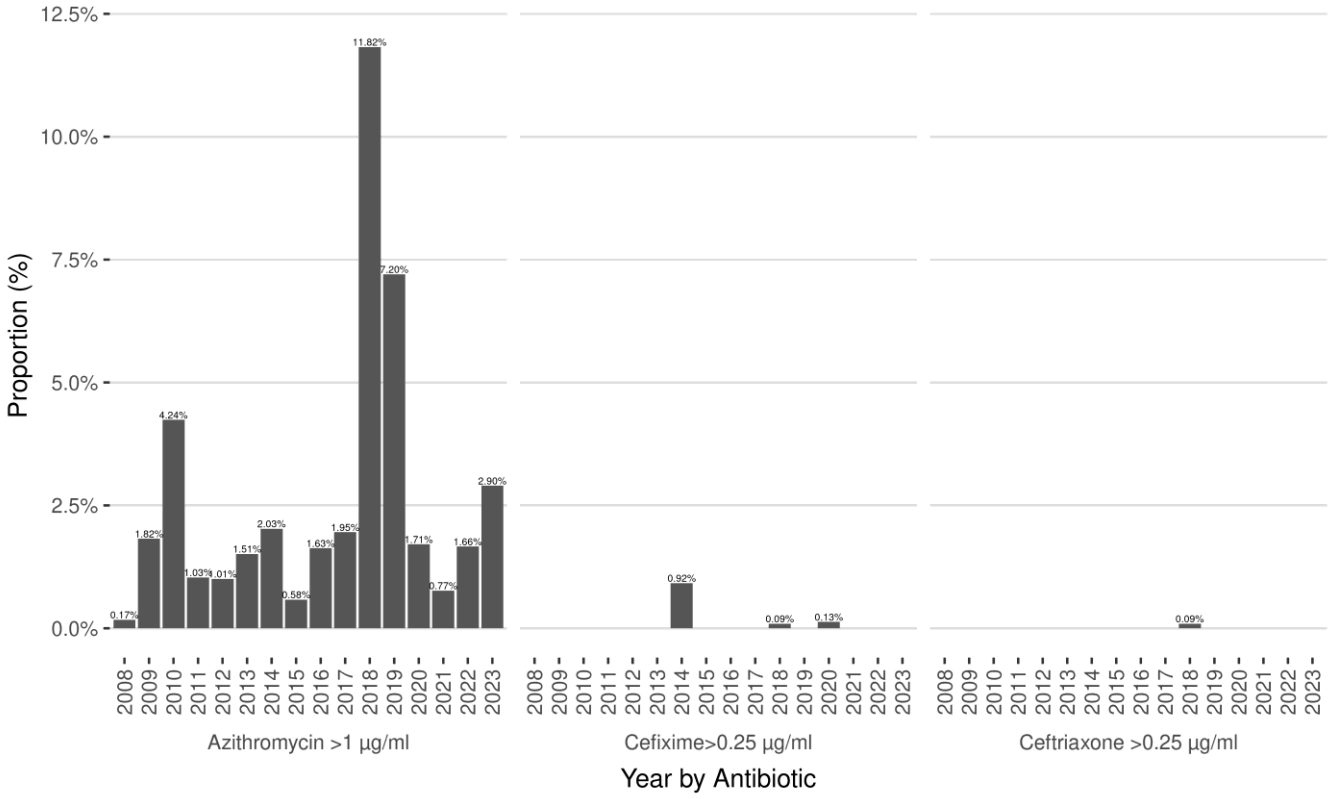
Non-infectious syphilis occurs when a case is untreated and progresses to late-latent or tertiary stages of infection, typically after more than one year since the infection was acquired. At these stages, while the infection is no longer sexually communicable, severe health consequences are possible. Between 2019 and 2023, 2,433 non-infectious syphilis cases were reported to Alberta Health, with the highest rates in 2023 in Calgary and North Zones (19.2 and 18.7 cases per 100,000 population, respectively). Since 2019, non-infectious syphilis cases have been increasing (323 in 2019 to 817 in 2023), with the largest per cent change among females (161% increase) during this period.



Annex Figure 3. Counts and rates of non-infectious syphilis by gender for Alberta and AHS Zones, 2019 to 2023. Note: Zone is unknown for 21 cases over this time period.

Annex 3: Antimicrobial Resistance of *Neisseria gonorrhoeae*

Alberta maintains surveillance of the antimicrobial resistance (AMR) of *Neisseria gonorrhoeae* to ensure effectiveness of current recommended treatment guidelines [17]. AMR is monitored through three sentinel sites in Alberta (i.e., Calgary, Edmonton, and Fort McMurray STI Clinics) where clients are routinely screened using both NAAT and cultures. In addition, collection of culture by all healthcare providers is recommended for all patients with sexual contact outside Canada, presumed treatment failure, sexual assault/abuse, and symptomatic men with same sex partners. All culture positive specimens are sent to the Alberta Precision Laboratories (APL) for antimicrobial susceptibility testing using E-test (gradient diffusion). Decreased susceptibility of isolates is based on Clinical and Laboratory Standards Institute (CLSI) guidelines: azithromycin (>1 µg/ml), cefixime (>0.25 µg/ml), and ceftriaxone (>0.25 µg/ml). From 2008 to 2023, 11,705 *Neisseria gonorrhoeae* isolates had susceptibility testing completed by APL. In 2023, no isolates were identified that have decreased susceptibility to cefixime or ceftriaxone and very few isolates (n = 25) were identified with decreased susceptibility to azithromycin.



Annex Figure 4. Proportion of *Neisseria gonorrhoeae* isolates with antimicrobial resistance to azithromycin or decreased susceptibility to cefixime or ceftriaxone, 2008 to 2023.

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